

Pantheon Report

Generated at 2017-09-19 03:57:27 (UTC).

Data path: GCE Sydney Ethernet (*local*) → GCE Tokyo Ethernet (*remote*).

Repeated the test of 10 congestion control schemes 10 times.

Each test lasted for 30 seconds running 3 flows with 10-second interval between two flows.

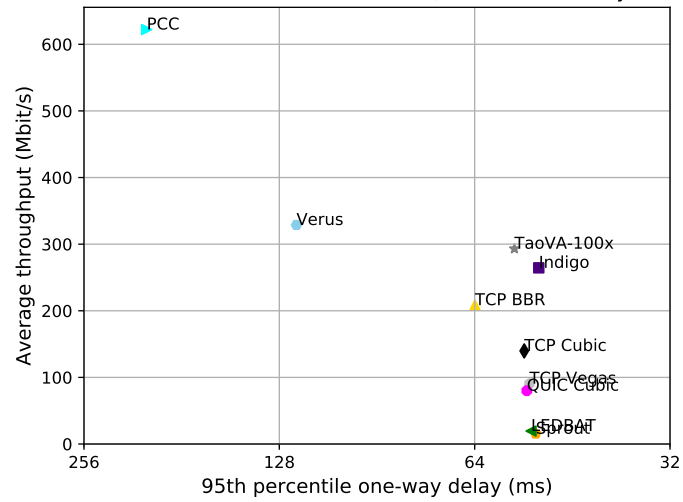
Increased UDP receive buffer to 16 MB (default) and 32 MB (max).

Tested BBR with qdisc of Fair Queuing (**fq**), and other schemes with the default Linux qdisc (**pfifo_fast**).

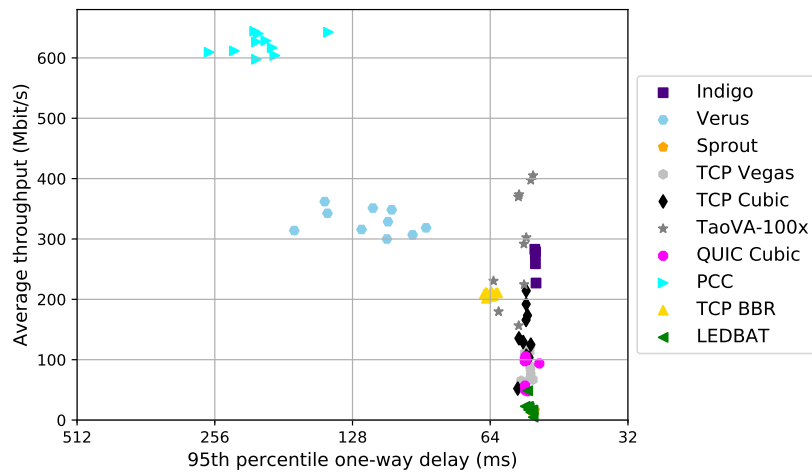
Git summary:

```
branch: master @ 57453dc11f8da93a2e03eea75289fea01b816298
third_party/calibrated_koho @ 3cb73c0d1c0322cdfae446ea37a522e53227db50
  M datagrump/sender.cc
third_party/genericCC @ f7ca42f251bf49b432bb71de6d13fa903515c366
third_party/indigo @ b19f3730105f9aa95452552af924e3719b03cc55
third_party/koho_cc @ f0f2e693303aee82ea808e6928eac4f1083a6681
  M datagrump/sender.cc
third_party/libutp @ b3465b942e2826f2b179eaab4a906ce6bb7cf3cf
third_party/pantheon-tunnel @ baf443516dea3eeddeccaf9b916cc313273ca4f4
third_party/pcc @ 1afc958fa0d66d18b623c091a55fec872b4981e1
  M receiver/src/buffer.h
  M receiver/src/core.cpp
  M sender/src/buffer.h
  M sender/src/core.cpp
third_party/proto-quick @ 77961f1a82733a86b42f1bc8143ebc978f3cff42
third_party/scream @ c3370fd7bd17265a79aeb34e4016ad23f5965885
third_party/sourdough @ f1a14bffe749737437f61b1eaaeb30b267cde681
third_party/sprout @ 6f2efe6e088d91066a9f023df375eee2665089ce
  M src/examples/cellsim.cc
  M src/examples/sproutbt2.cc
  M src/network/sproutconn.cc
third_party/verus @ d4b447ea74c6c60a261149af2629562939f9a494
  M src/verus.hpp
  M tools/plot.py
third_party/webRTC @ a488197ddd041ace68a42849b2540ad834825f42
```

test from GCE Sydney Ethernet to GCE Tokyo Ethernet, 10 runs of 30s each per scheme
 3 flows with 10s interval between flows (mean of all runs by scheme)



test from GCE Sydney Ethernet to GCE Tokyo Ethernet, 10 runs of 30s each per scheme
 3 flows with 10s interval between flows



scheme	# runs	mean avg tput (Mbit/s)			mean 95th-%ile delay (ms)			mean loss rate (%)		
		flow 1	flow 2	flow 3	flow 1	flow 2	flow 3	flow 1	flow 2	flow 3
TCP BBR	10	104.98	103.46	105.17	63.46	64.53	63.92	0.14	0.09	0.17
TCP Cubic	10	70.36	86.78	36.01	237.41	53.62	52.46	0.08	0.05	0.24
Indigo	5	143.17	132.67	104.75	50.80	51.15	51.25	0.03	0.03	0.03
LEDBAT	10	9.73	11.68	6.41	52.39	52.28	52.04	0.39	0.30	0.43
PCC	10	436.27	233.94	93.04	220.03	151.08	130.16	4.60	2.85	2.93
QUIC Cubic	10	31.52	51.31	44.75	51.85	52.12	51.23	0.00	0.00	0.01
Sprout	10	7.79	7.70	7.35	51.87	51.56	51.59	0.23	0.25	0.13
TaoVA-100x	10	147.74	173.96	119.63	53.60	56.31	56.83	0.08	0.12	0.14
TCP Vegas	10	43.68	48.89	43.50	52.52	52.23	53.89	0.07	0.04	0.06
Verus	10	177.60	172.23	119.84	110.11	122.23	131.84	0.46	0.49	2.12

Run 1: Statistics of TCP BBR

Start at: 2017-09-19 00:05:47

End at: 2017-09-19 00:06:17

Below is generated by plot.py at 2017-09-19 03:08:11

Datalink statistics

-- Total of 3 flows:

Average throughput: 206.02 Mbit/s

95th percentile per-packet one-way delay: 63.237 ms

Loss rate: 0.18%

-- Flow 1:

Average throughput: 106.68 Mbit/s

95th percentile per-packet one-way delay: 62.559 ms

Loss rate: 0.19%

-- Flow 2:

Average throughput: 96.18 Mbit/s

95th percentile per-packet one-way delay: 65.679 ms

Loss rate: 0.10%

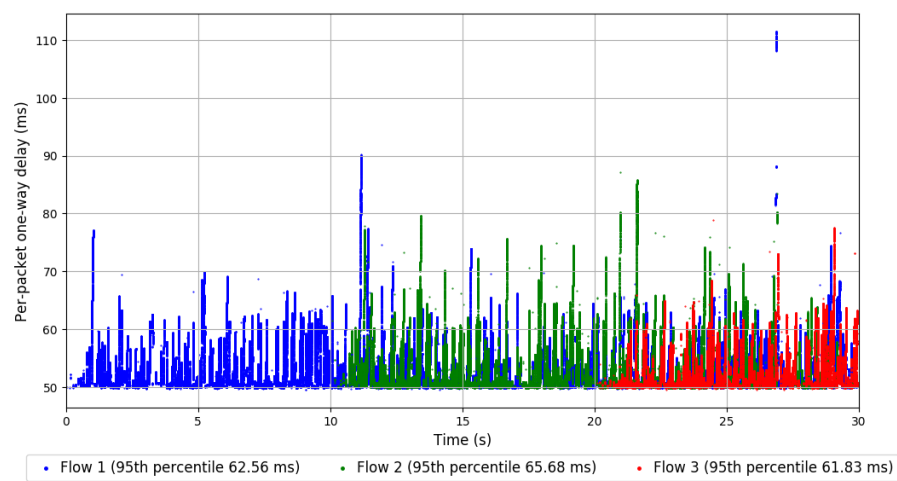
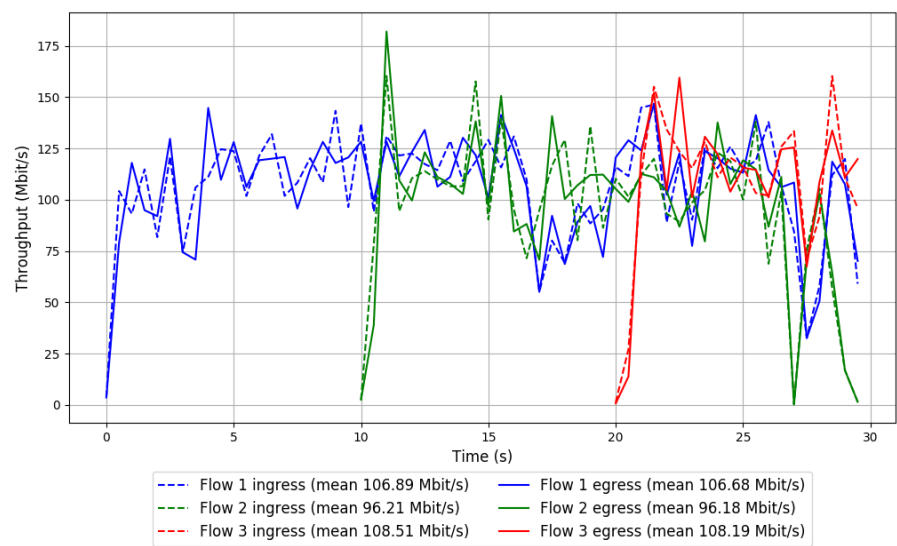
-- Flow 3:

Average throughput: 108.19 Mbit/s

95th percentile per-packet one-way delay: 61.828 ms

Loss rate: 0.29%

Run 1: Report of TCP BBR — Data Link



Run 2: Statistics of TCP BBR

Start at: 2017-09-19 00:15:02

End at: 2017-09-19 00:15:32

Below is generated by plot.py at 2017-09-19 03:08:14

Datalink statistics

-- Total of 3 flows:

Average throughput: 206.34 Mbit/s

95th percentile per-packet one-way delay: 63.076 ms

Loss rate: 0.14%

-- Flow 1:

Average throughput: 102.27 Mbit/s

95th percentile per-packet one-way delay: 62.082 ms

Loss rate: 0.19%

-- Flow 2:

Average throughput: 102.20 Mbit/s

95th percentile per-packet one-way delay: 65.053 ms

Loss rate: 0.11%

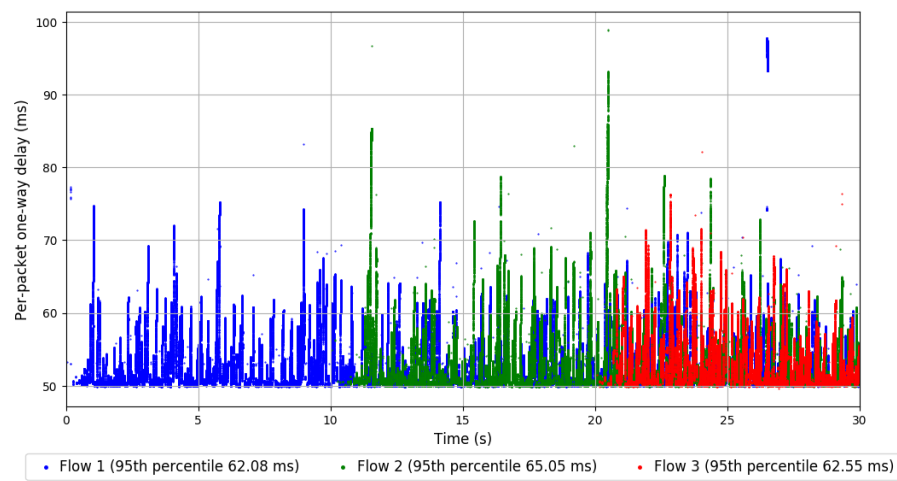
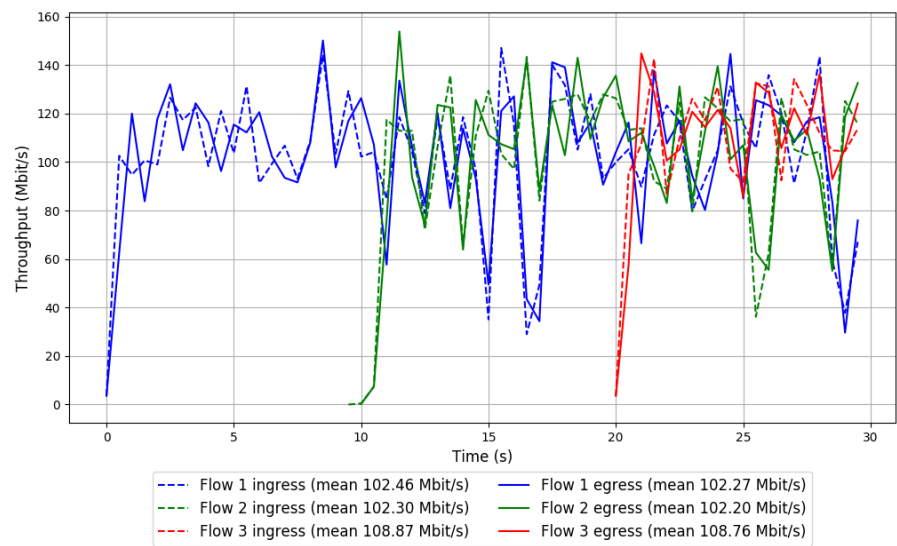
-- Flow 3:

Average throughput: 108.76 Mbit/s

95th percentile per-packet one-way delay: 62.551 ms

Loss rate: 0.06%

Run 2: Report of TCP BBR — Data Link



Run 3: Statistics of TCP BBR

Start at: 2017-09-19 00:23:56

End at: 2017-09-19 00:24:26

Below is generated by plot.py at 2017-09-19 03:08:14

Datalink statistics

-- Total of 3 flows:

Average throughput: 201.77 Mbit/s

95th percentile per-packet one-way delay: 65.257 ms

Loss rate: 0.09%

-- Flow 1:

Average throughput: 95.91 Mbit/s

95th percentile per-packet one-way delay: 62.095 ms

Loss rate: 0.07%

-- Flow 2:

Average throughput: 105.18 Mbit/s

95th percentile per-packet one-way delay: 67.082 ms

Loss rate: 0.06%

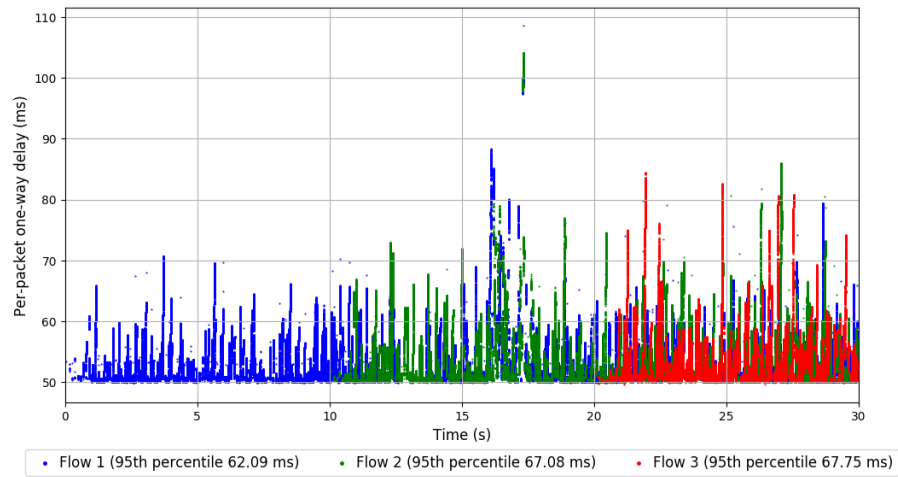
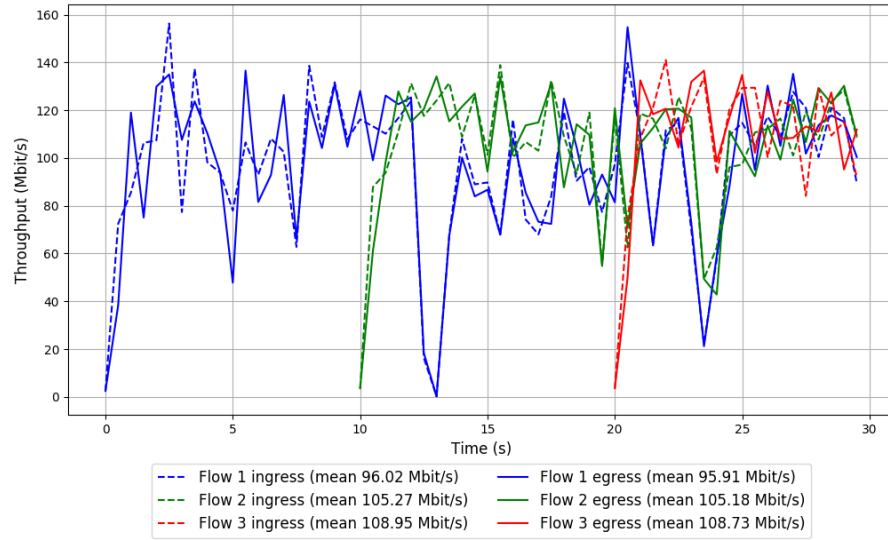
-- Flow 3:

Average throughput: 108.73 Mbit/s

95th percentile per-packet one-way delay: 67.745 ms

Loss rate: 0.21%

Run 3: Report of TCP BBR — Data Link



Run 4: Statistics of TCP BBR

Start at: 2017-09-19 00:32:52

End at: 2017-09-19 00:33:22

Below is generated by plot.py at 2017-09-19 03:08:14

Datalink statistics

-- Total of 3 flows:

Average throughput: 204.70 Mbit/s

95th percentile per-packet one-way delay: 64.013 ms

Loss rate: 0.11%

-- Flow 1:

Average throughput: 104.67 Mbit/s

95th percentile per-packet one-way delay: 63.970 ms

Loss rate: 0.11%

-- Flow 2:

Average throughput: 96.83 Mbit/s

95th percentile per-packet one-way delay: 63.828 ms

Loss rate: 0.10%

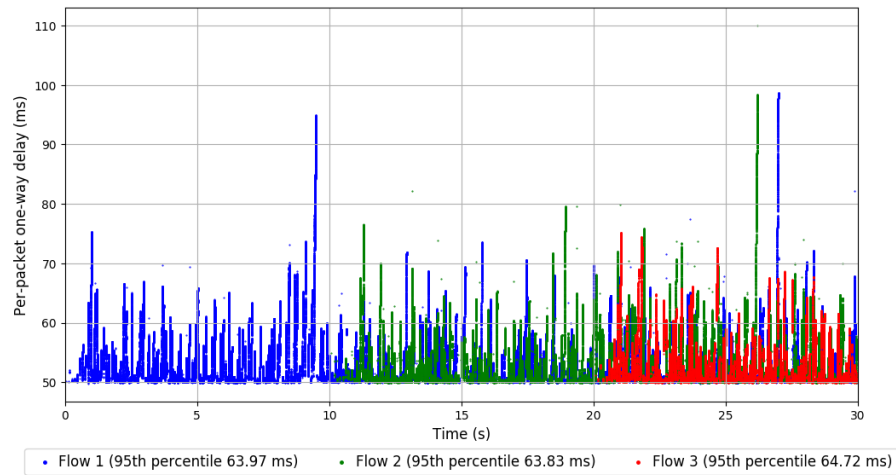
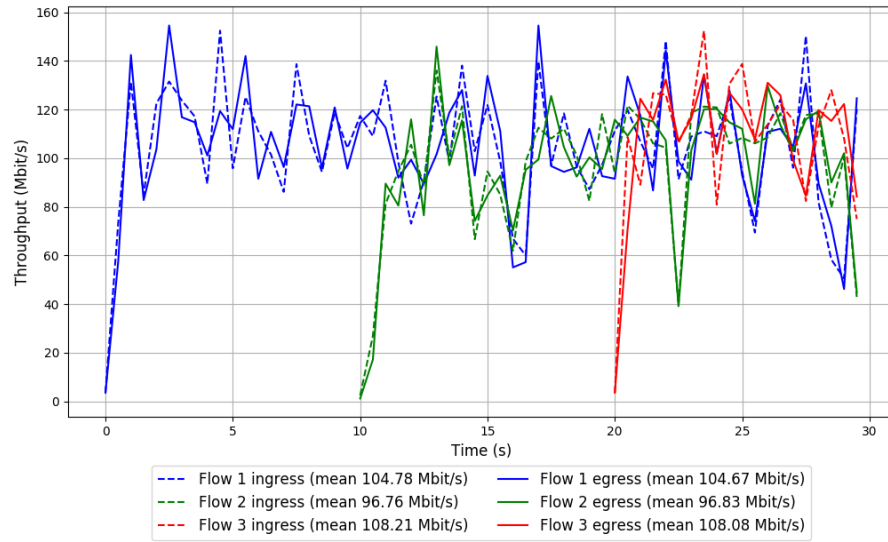
-- Flow 3:

Average throughput: 108.08 Mbit/s

95th percentile per-packet one-way delay: 64.719 ms

Loss rate: 0.14%

Run 4: Report of TCP BBR — Data Link



Run 5: Statistics of TCP BBR

Start at: 2017-09-19 00:41:47

End at: 2017-09-19 00:42:17

Below is generated by plot.py at 2017-09-19 03:08:17

Datalink statistics

-- Total of 3 flows:

Average throughput: 210.09 Mbit/s

95th percentile per-packet one-way delay: 64.995 ms

Loss rate: 0.14%

-- Flow 1:

Average throughput: 107.76 Mbit/s

95th percentile per-packet one-way delay: 63.498 ms

Loss rate: 0.11%

-- Flow 2:

Average throughput: 102.39 Mbit/s

95th percentile per-packet one-way delay: 66.094 ms

Loss rate: 0.04%

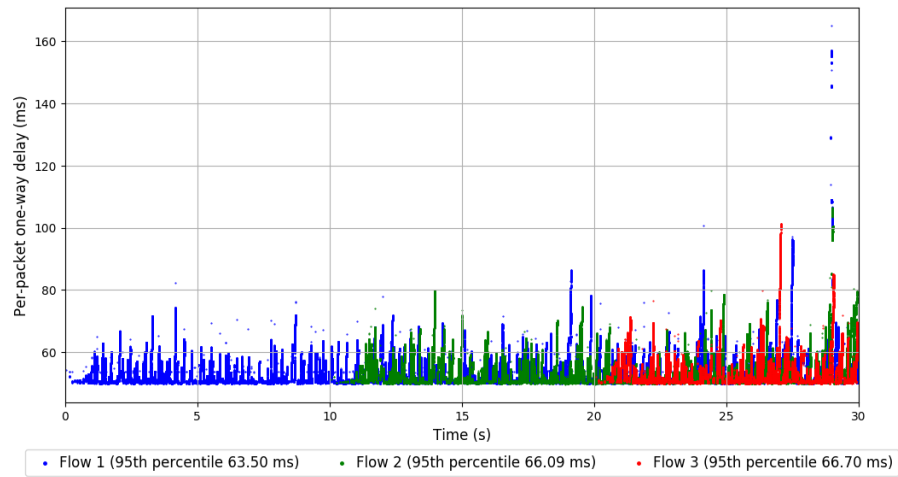
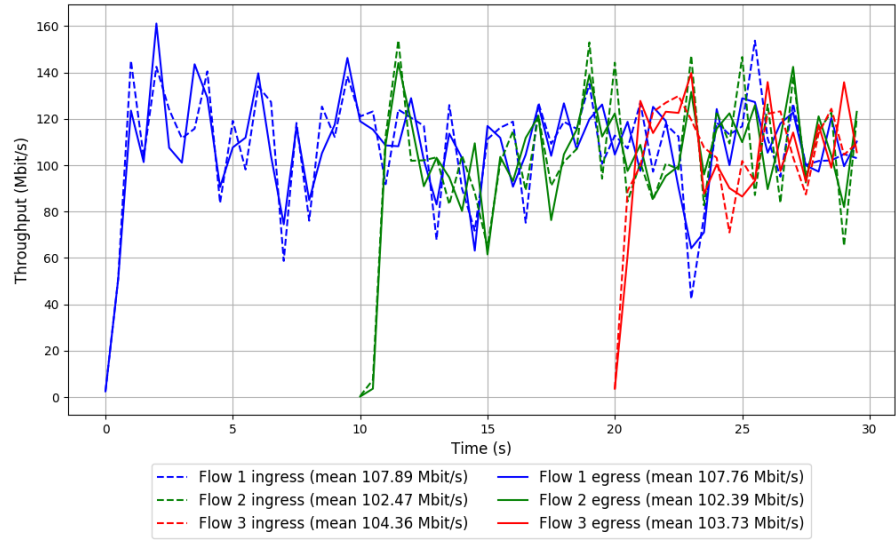
-- Flow 3:

Average throughput: 103.73 Mbit/s

95th percentile per-packet one-way delay: 66.700 ms

Loss rate: 0.43%

Run 5: Report of TCP BBR — Data Link



Run 6: Statistics of TCP BBR

Start at: 2017-09-19 00:51:09

End at: 2017-09-19 00:51:39

Below is generated by plot.py at 2017-09-19 03:08:20

Datalink statistics

-- Total of 3 flows:

Average throughput: 210.88 Mbit/s

95th percentile per-packet one-way delay: 62.160 ms

Loss rate: 0.11%

-- Flow 1:

Average throughput: 109.71 Mbit/s

95th percentile per-packet one-way delay: 62.578 ms

Loss rate: 0.10%

-- Flow 2:

Average throughput: 102.86 Mbit/s

95th percentile per-packet one-way delay: 61.843 ms

Loss rate: 0.10%

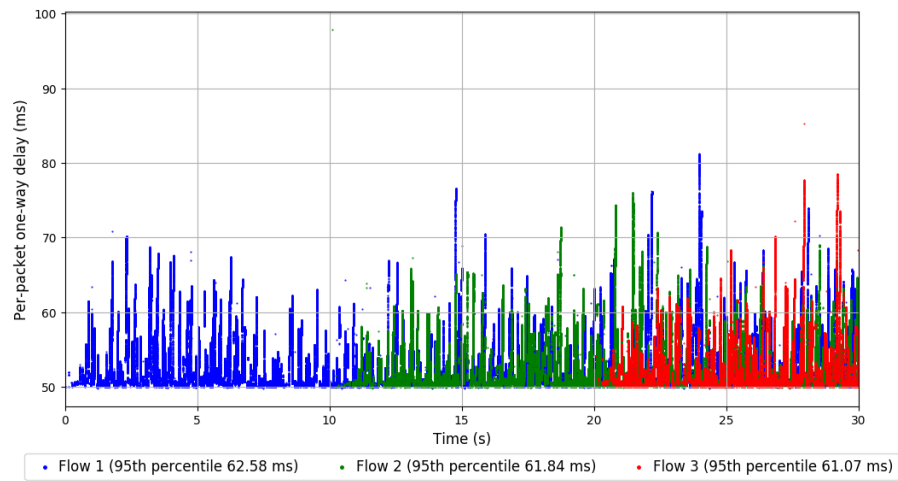
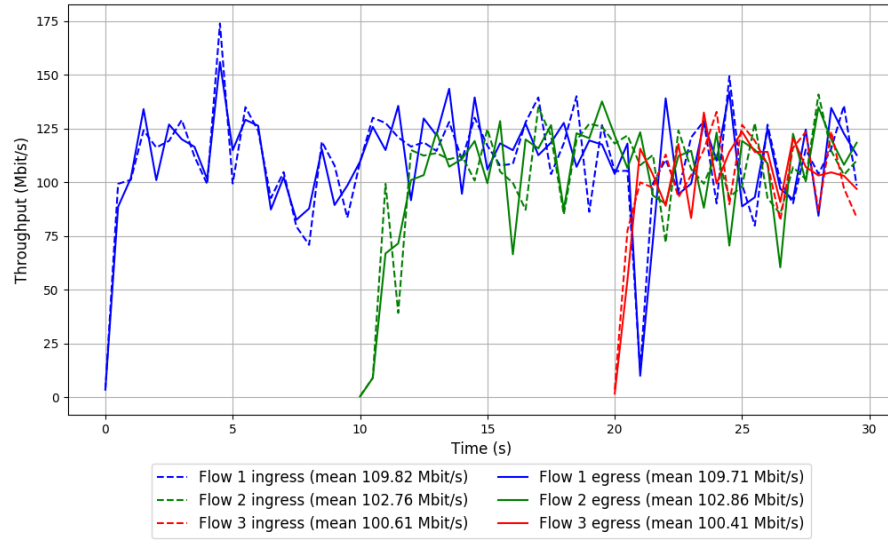
-- Flow 3:

Average throughput: 100.41 Mbit/s

95th percentile per-packet one-way delay: 61.068 ms

Loss rate: 0.17%

Run 6: Report of TCP BBR — Data Link



Run 7: Statistics of TCP BBR

Start at: 2017-09-19 01:00:29

End at: 2017-09-19 01:00:59

Below is generated by plot.py at 2017-09-19 03:08:22

Datalink statistics

-- Total of 3 flows:

Average throughput: 213.03 Mbit/s

95th percentile per-packet one-way delay: 63.647 ms

Loss rate: 0.11%

-- Flow 1:

Average throughput: 108.81 Mbit/s

95th percentile per-packet one-way delay: 64.298 ms

Loss rate: 0.13%

-- Flow 2:

Average throughput: 108.30 Mbit/s

95th percentile per-packet one-way delay: 64.086 ms

Loss rate: 0.12%

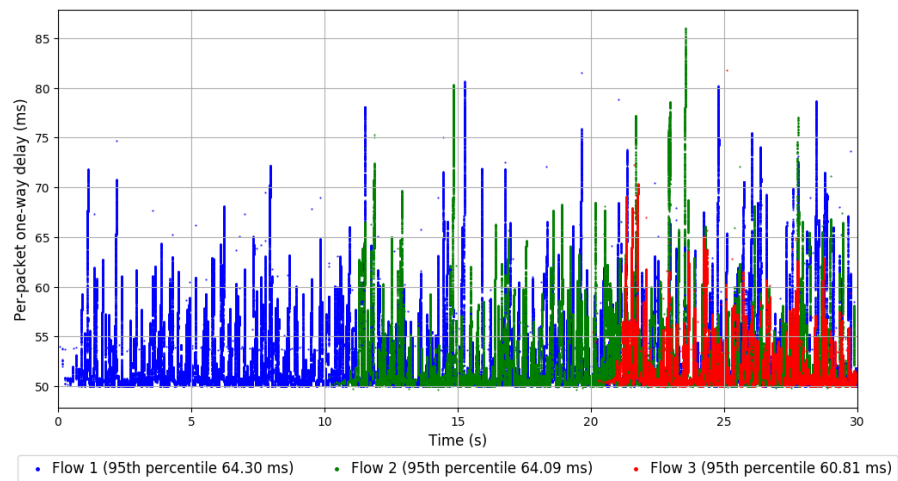
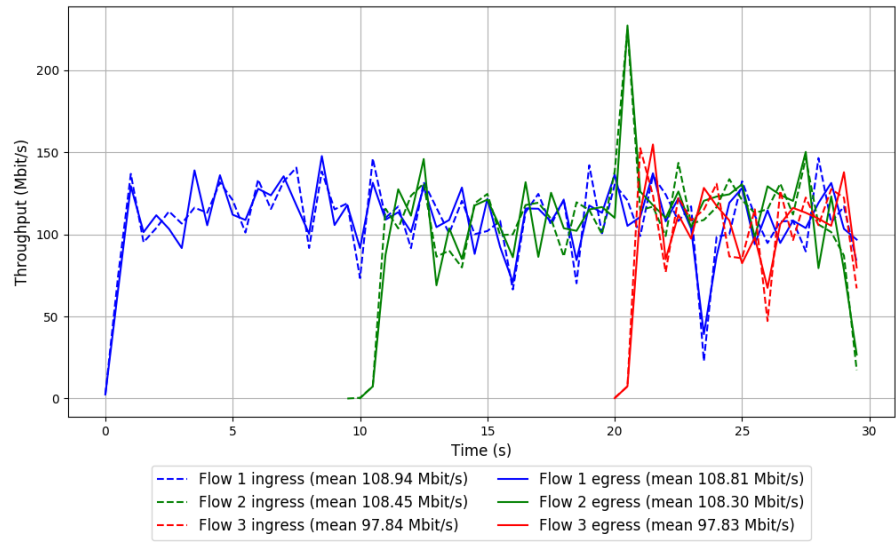
-- Flow 3:

Average throughput: 97.83 Mbit/s

95th percentile per-packet one-way delay: 60.808 ms

Loss rate: 0.05%

Run 7: Report of TCP BBR — Data Link



Run 8: Statistics of TCP BBR

Start at: 2017-09-19 01:09:27

End at: 2017-09-19 01:09:57

Below is generated by plot.py at 2017-09-19 03:08:22

Datalink statistics

-- Total of 3 flows:

Average throughput: 209.06 Mbit/s

95th percentile per-packet one-way delay: 65.918 ms

Loss rate: 0.15%

-- Flow 1:

Average throughput: 104.17 Mbit/s

95th percentile per-packet one-way delay: 65.739 ms

Loss rate: 0.20%

-- Flow 2:

Average throughput: 106.22 Mbit/s

95th percentile per-packet one-way delay: 64.752 ms

Loss rate: 0.12%

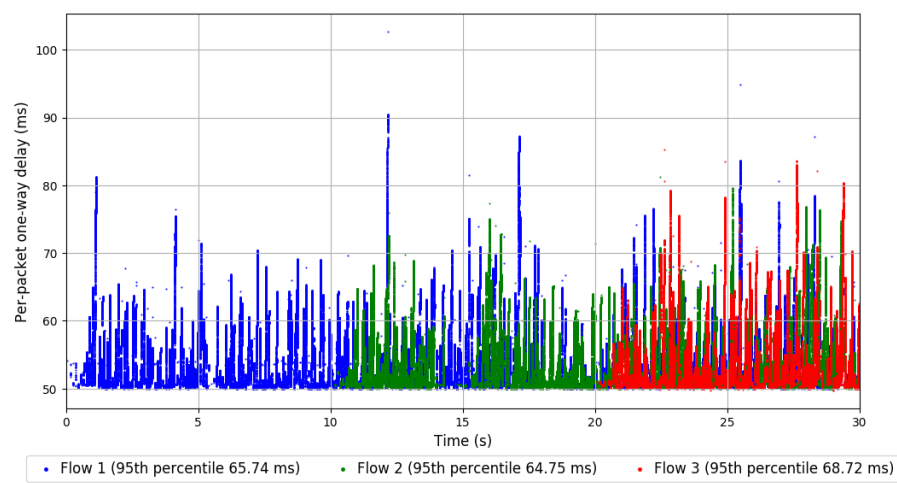
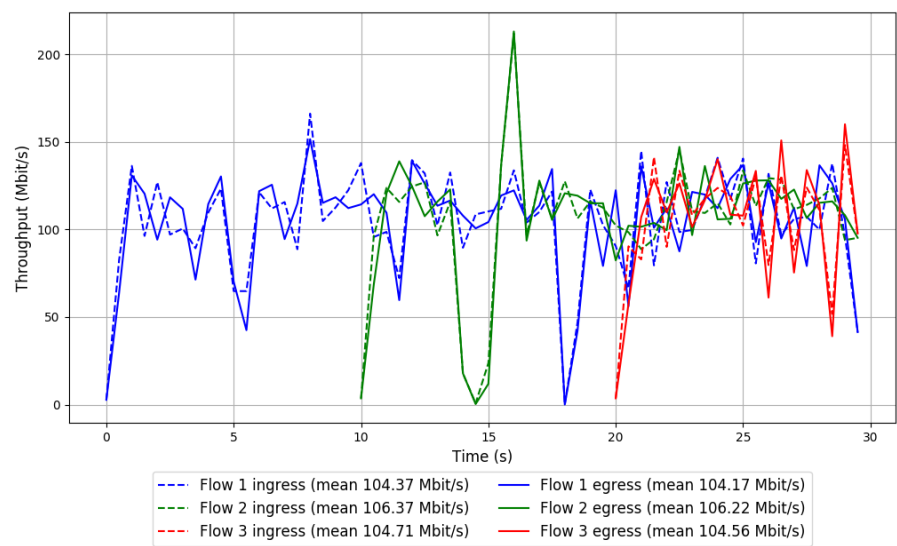
-- Flow 3:

Average throughput: 104.56 Mbit/s

95th percentile per-packet one-way delay: 68.721 ms

Loss rate: 0.03%

Run 8: Report of TCP BBR — Data Link



Run 9: Statistics of TCP BBR

Start at: 2017-09-19 01:18:12

End at: 2017-09-19 01:18:42

Below is generated by plot.py at 2017-09-19 03:12:15

Datalink statistics

-- Total of 3 flows:

Average throughput: 210.73 Mbit/s

95th percentile per-packet one-way delay: 61.677 ms

Loss rate: 0.11%

-- Flow 1:

Average throughput: 102.27 Mbit/s

95th percentile per-packet one-way delay: 62.192 ms

Loss rate: 0.20%

-- Flow 2:

Average throughput: 108.36 Mbit/s

95th percentile per-packet one-way delay: 62.028 ms

Loss rate: 0.03%

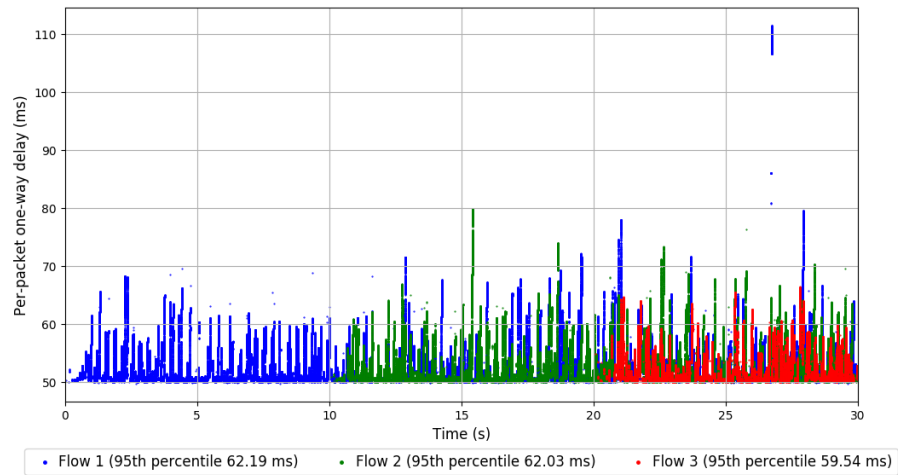
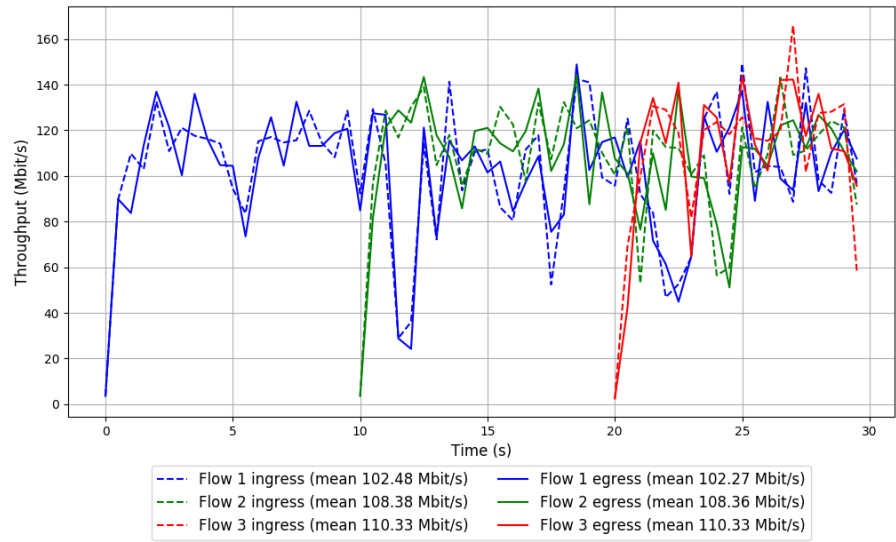
-- Flow 3:

Average throughput: 110.33 Mbit/s

95th percentile per-packet one-way delay: 59.540 ms

Loss rate: 0.03%

Run 9: Report of TCP BBR — Data Link



Run 10: Statistics of TCP BBR

Start at: 2017-09-19 01:27:30

End at: 2017-09-19 01:28:00

Below is generated by plot.py at 2017-09-19 03:12:21

Datalink statistics

-- Total of 3 flows:

Average throughput: 211.47 Mbit/s

95th percentile per-packet one-way delay: 65.368 ms

Loss rate: 0.12%

-- Flow 1:

Average throughput: 107.51 Mbit/s

95th percentile per-packet one-way delay: 65.541 ms

Loss rate: 0.07%

-- Flow 2:

Average throughput: 106.10 Mbit/s

95th percentile per-packet one-way delay: 64.895 ms

Loss rate: 0.13%

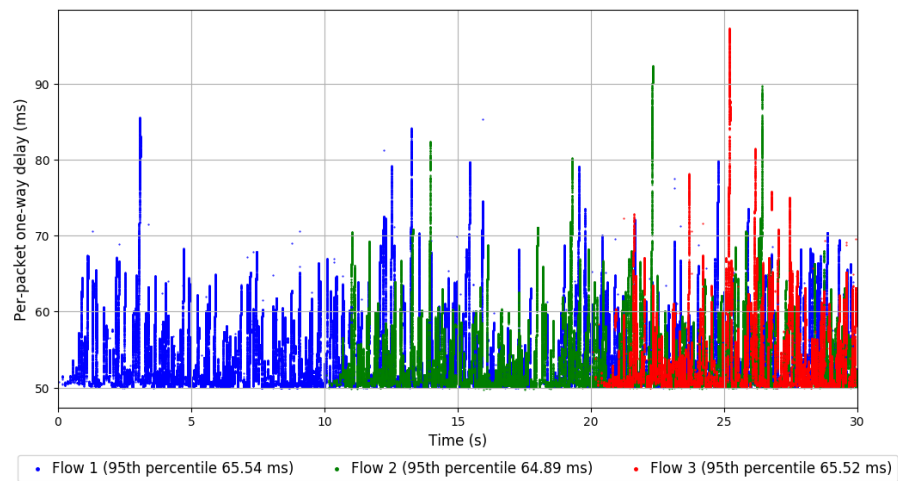
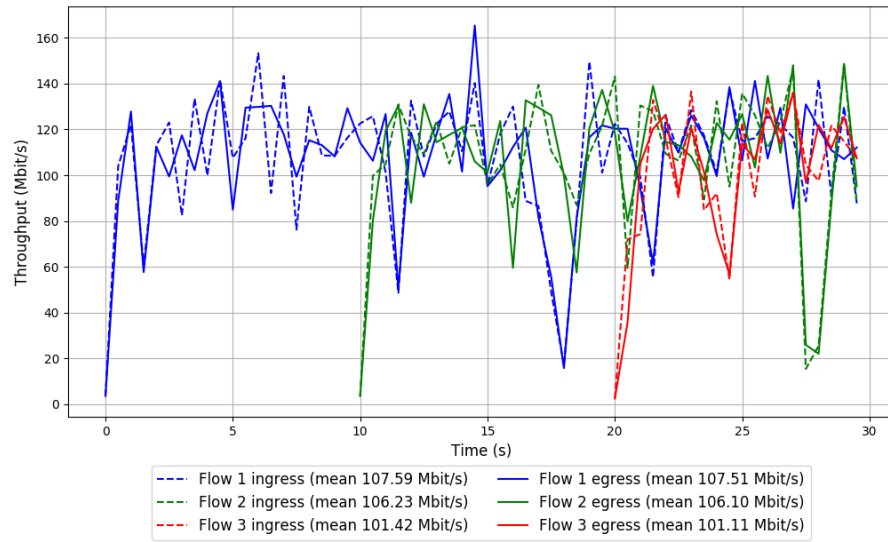
-- Flow 3:

Average throughput: 101.11 Mbit/s

95th percentile per-packet one-way delay: 65.524 ms

Loss rate: 0.25%

Run 10: Report of TCP BBR — Data Link



Run 1: Statistics of TCP Cubic

Start at: 2017-09-19 00:01:51

End at: 2017-09-19 00:02:21

Below is generated by plot.py at 2017-09-19 03:12:21

Datalink statistics

-- Total of 3 flows:

Average throughput: 165.88 Mbit/s

95th percentile per-packet one-way delay: 53.436 ms

Loss rate: 0.03%

-- Flow 1:

Average throughput: 70.29 Mbit/s

95th percentile per-packet one-way delay: 52.918 ms

Loss rate: 0.02%

-- Flow 2:

Average throughput: 103.50 Mbit/s

95th percentile per-packet one-way delay: 52.990 ms

Loss rate: 0.01%

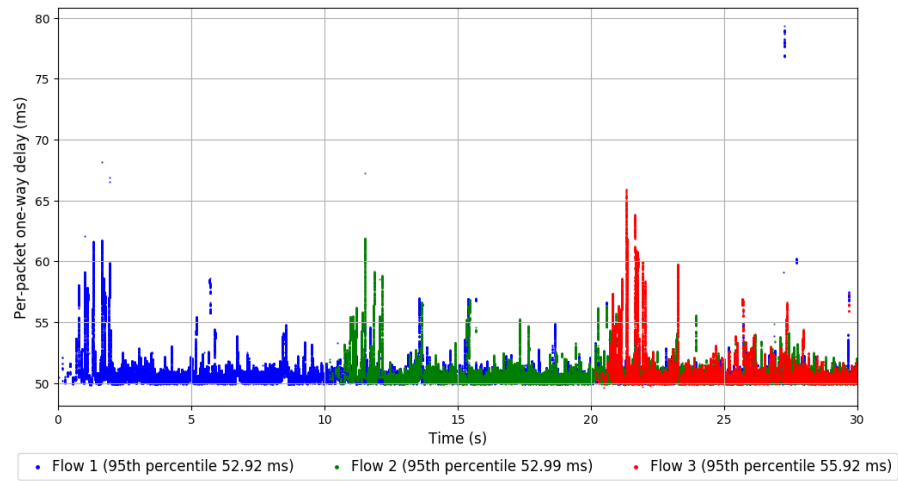
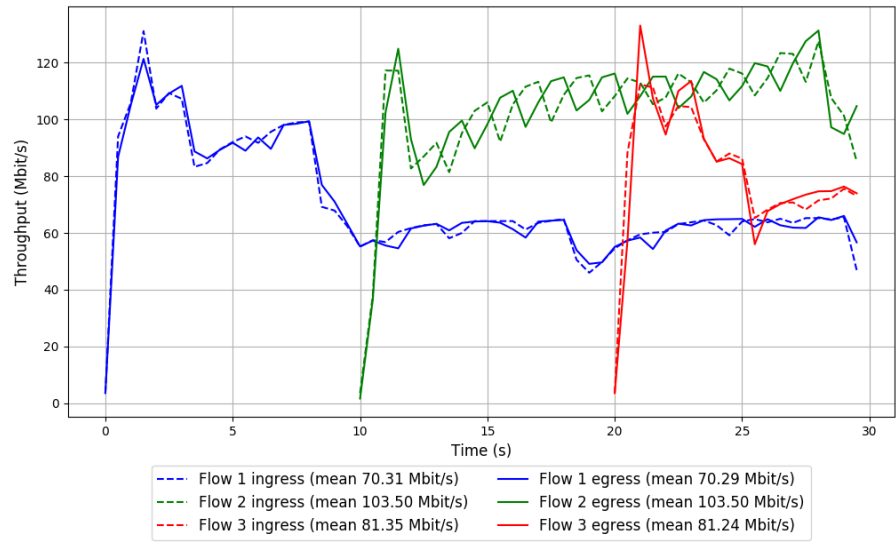
-- Flow 3:

Average throughput: 81.24 Mbit/s

95th percentile per-packet one-way delay: 55.917 ms

Loss rate: 0.13%

Run 1: Report of TCP Cubic — Data Link



Run 2: Statistics of TCP Cubic

Start at: 2017-09-19 00:11:13

End at: 2017-09-19 00:11:43

Below is generated by plot.py at 2017-09-19 03:12:31

Datalink statistics

-- Total of 3 flows:

Average throughput: 214.23 Mbit/s

95th percentile per-packet one-way delay: 53.396 ms

Loss rate: 0.02%

-- Flow 1:

Average throughput: 131.35 Mbit/s

95th percentile per-packet one-way delay: 53.852 ms

Loss rate: 0.02%

-- Flow 2:

Average throughput: 122.27 Mbit/s

95th percentile per-packet one-way delay: 52.699 ms

Loss rate: 0.03%

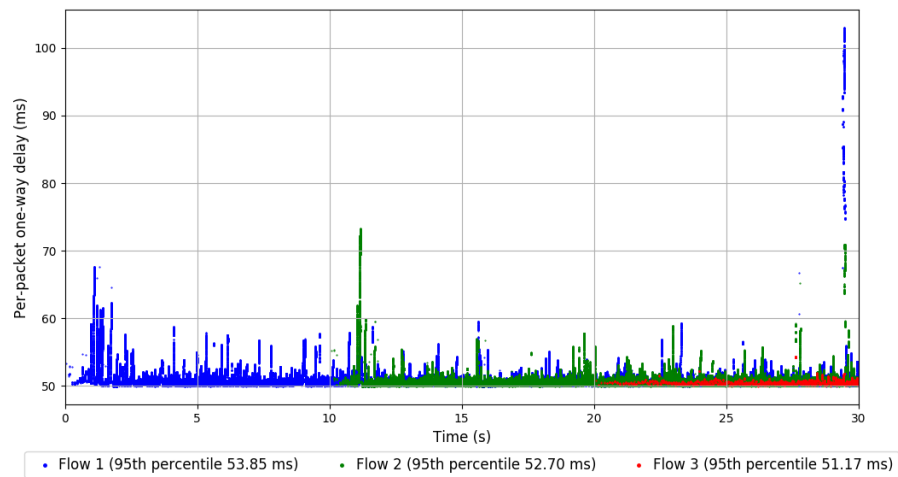
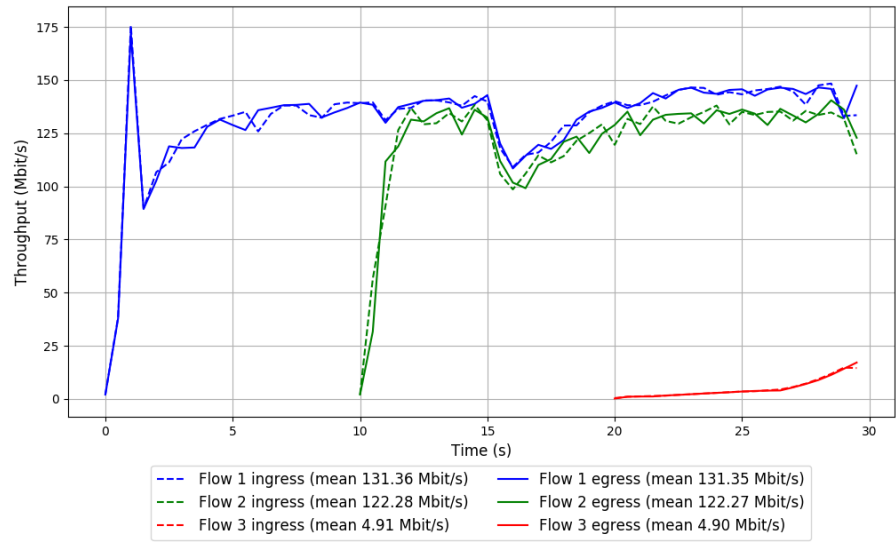
-- Flow 3:

Average throughput: 4.90 Mbit/s

95th percentile per-packet one-way delay: 51.166 ms

Loss rate: 0.22%

Run 2: Report of TCP Cubic — Data Link



Run 3: Statistics of TCP Cubic

Start at: 2017-09-19 00:20:26

End at: 2017-09-19 00:20:56

Below is generated by plot.py at 2017-09-19 03:12:31

Datalink statistics

-- Total of 3 flows:

Average throughput: 106.51 Mbit/s

95th percentile per-packet one-way delay: 53.360 ms

Loss rate: 0.06%

-- Flow 1:

Average throughput: 60.40 Mbit/s

95th percentile per-packet one-way delay: 53.577 ms

Loss rate: 0.08%

-- Flow 2:

Average throughput: 67.50 Mbit/s

95th percentile per-packet one-way delay: 53.225 ms

Loss rate: 0.04%

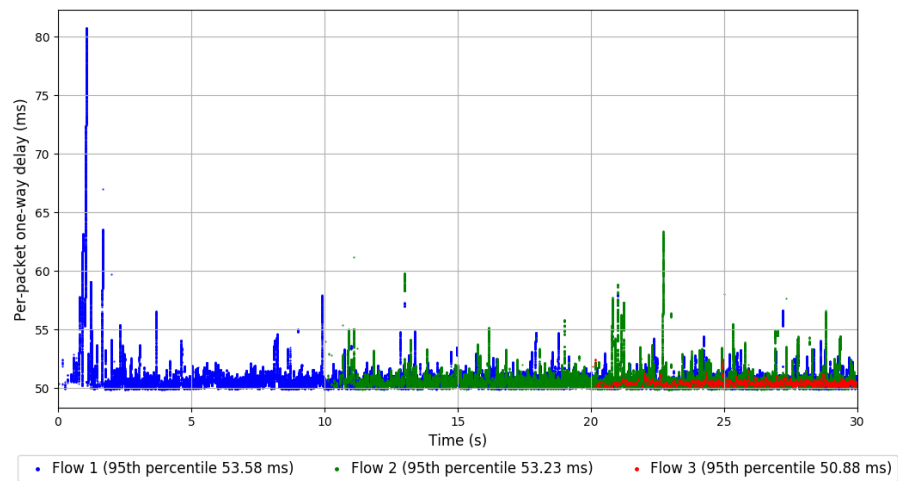
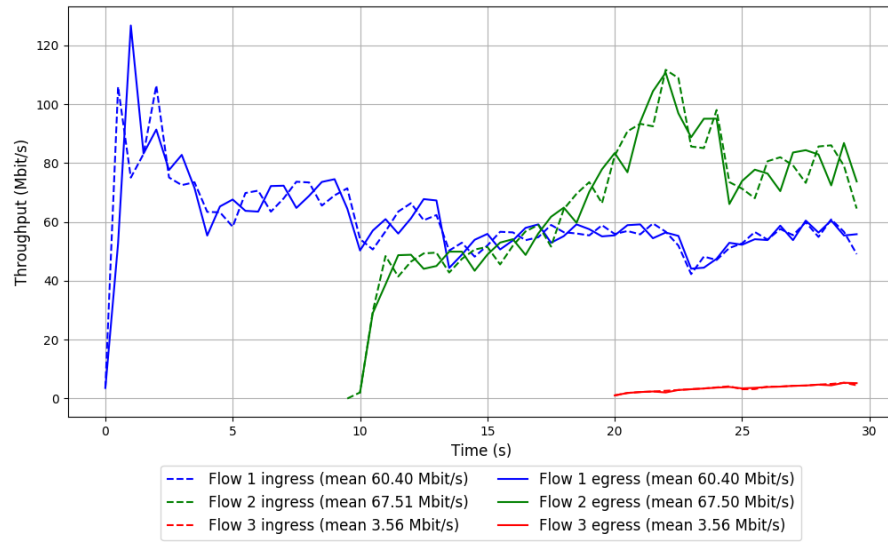
-- Flow 3:

Average throughput: 3.56 Mbit/s

95th percentile per-packet one-way delay: 50.877 ms

Loss rate: 0.17%

Run 3: Report of TCP Cubic — Data Link



Run 4: Statistics of TCP Cubic

Start at: 2017-09-19 00:29:20

End at: 2017-09-19 00:29:50

Below is generated by plot.py at 2017-09-19 03:12:31

Datalink statistics

-- Total of 3 flows:

Average throughput: 52.10 Mbit/s

95th percentile per-packet one-way delay: 55.732 ms

Loss rate: 0.03%

-- Flow 1:

Average throughput: 5.51 Mbit/s

95th percentile per-packet one-way delay: 1892.536 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 71.85 Mbit/s

95th percentile per-packet one-way delay: 55.919 ms

Loss rate: 0.02%

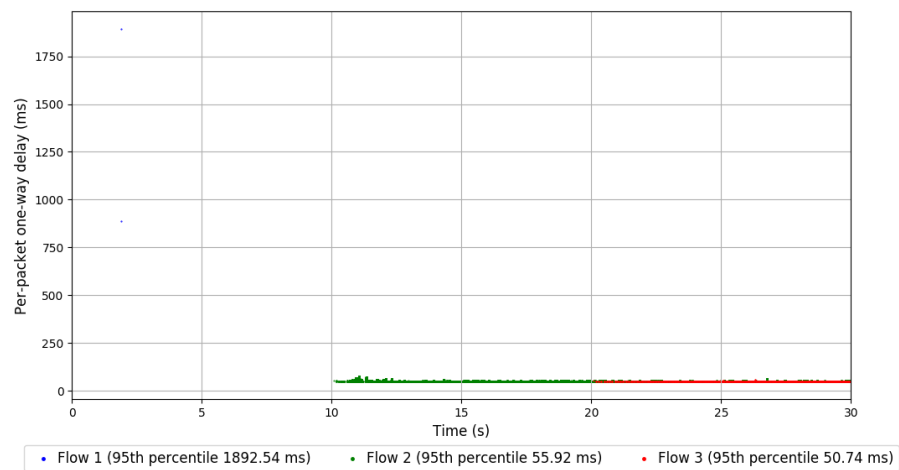
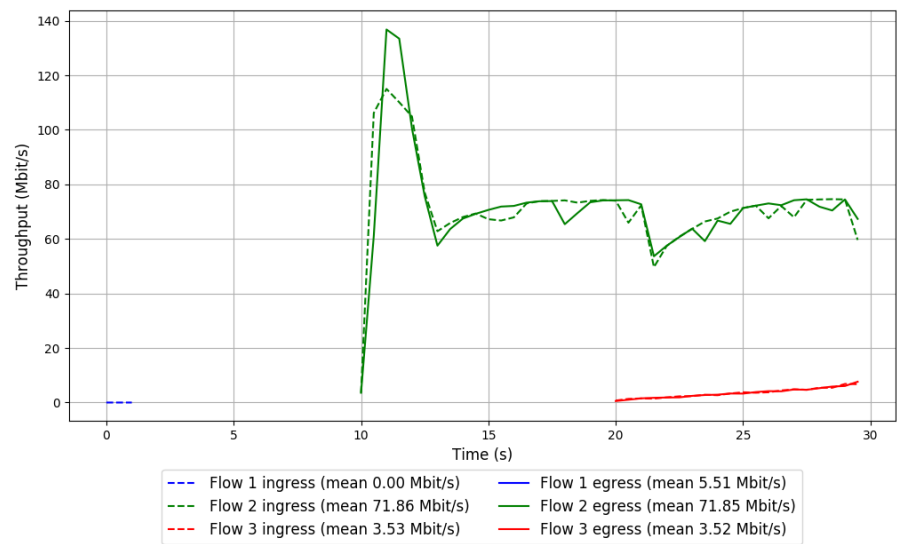
-- Flow 3:

Average throughput: 3.52 Mbit/s

95th percentile per-packet one-way delay: 50.739 ms

Loss rate: 0.24%

Run 4: Report of TCP Cubic — Data Link



Run 5: Statistics of TCP Cubic

Start at: 2017-09-19 00:38:17

End at: 2017-09-19 00:38:47

Below is generated by plot.py at 2017-09-19 03:12:31

Datalink statistics

-- Total of 3 flows:

Average throughput: 173.35 Mbit/s

95th percentile per-packet one-way delay: 53.055 ms

Loss rate: 0.04%

-- Flow 1:

Average throughput: 79.07 Mbit/s

95th percentile per-packet one-way delay: 52.798 ms

Loss rate: 0.04%

-- Flow 2:

Average throughput: 89.12 Mbit/s

95th percentile per-packet one-way delay: 54.002 ms

Loss rate: 0.06%

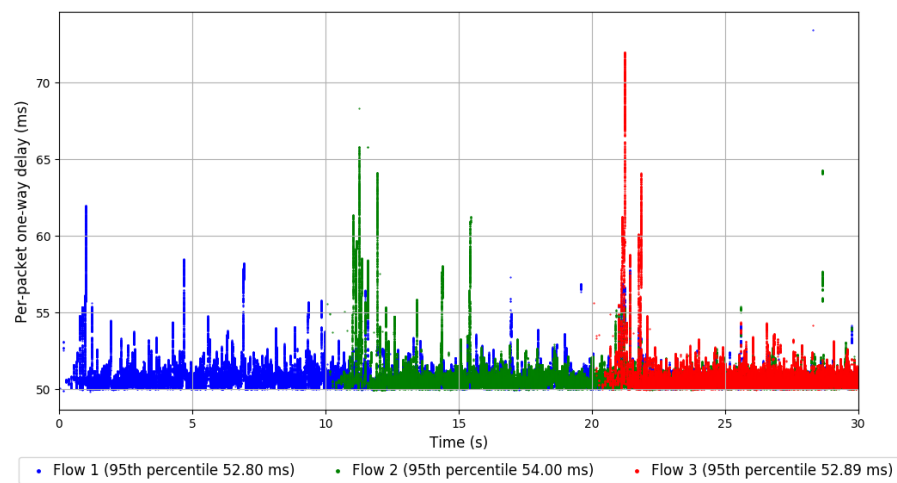
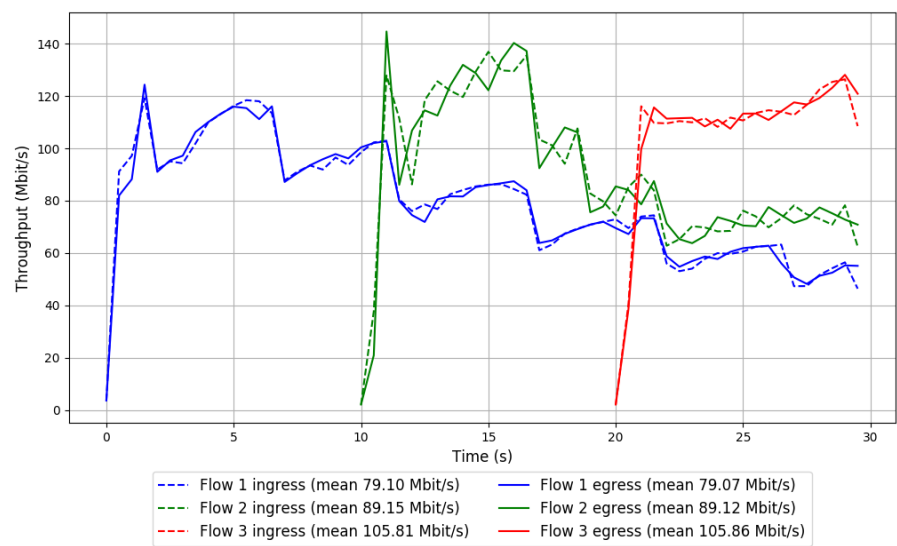
-- Flow 3:

Average throughput: 105.86 Mbit/s

95th percentile per-packet one-way delay: 52.893 ms

Loss rate: 0.00%

Run 5: Report of TCP Cubic — Data Link



Run 6: Statistics of TCP Cubic

Start at: 2017-09-19 00:47:15

End at: 2017-09-19 00:47:45

Below is generated by plot.py at 2017-09-19 03:12:31

Datalink statistics

-- Total of 3 flows:

Average throughput: 192.05 Mbit/s

95th percentile per-packet one-way delay: 53.408 ms

Loss rate: 0.08%

-- Flow 1:

Average throughput: 117.17 Mbit/s

95th percentile per-packet one-way delay: 53.249 ms

Loss rate: 0.07%

-- Flow 2:

Average throughput: 71.00 Mbit/s

95th percentile per-packet one-way delay: 53.872 ms

Loss rate: 0.09%

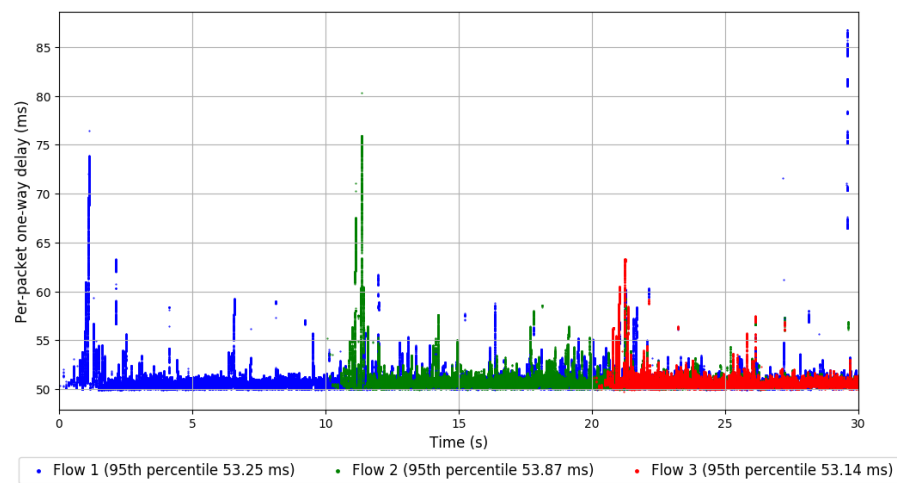
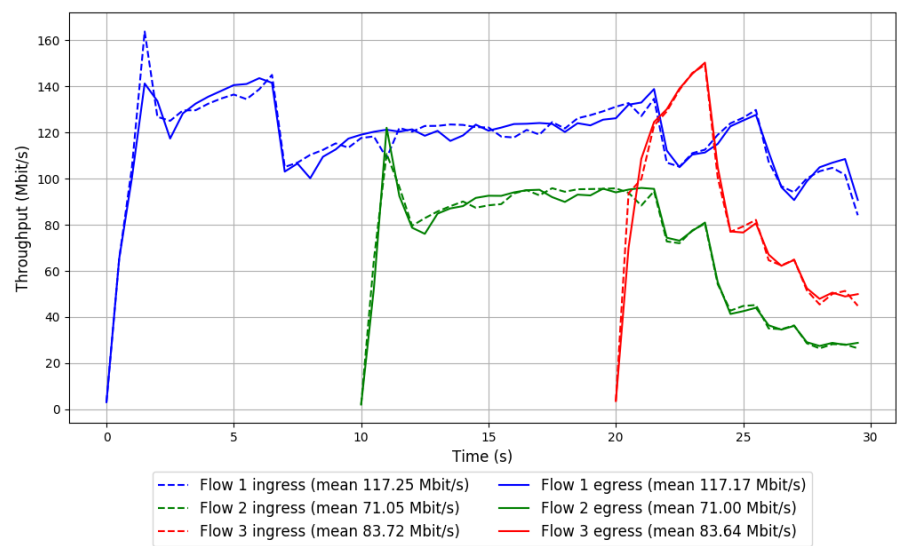
-- Flow 3:

Average throughput: 83.64 Mbit/s

95th percentile per-packet one-way delay: 53.142 ms

Loss rate: 0.11%

Run 6: Report of TCP Cubic — Data Link



Run 7: Statistics of TCP Cubic

Start at: 2017-09-19 00:56:37

End at: 2017-09-19 00:57:07

Below is generated by plot.py at 2017-09-19 03:12:31

Datalink statistics

-- Total of 3 flows:

Average throughput: 124.96 Mbit/s

95th percentile per-packet one-way delay: 52.171 ms

Loss rate: 0.10%

-- Flow 1:

Average throughput: 57.88 Mbit/s

95th percentile per-packet one-way delay: 52.082 ms

Loss rate: 0.18%

-- Flow 2:

Average throughput: 99.60 Mbit/s

95th percentile per-packet one-way delay: 52.268 ms

Loss rate: 0.02%

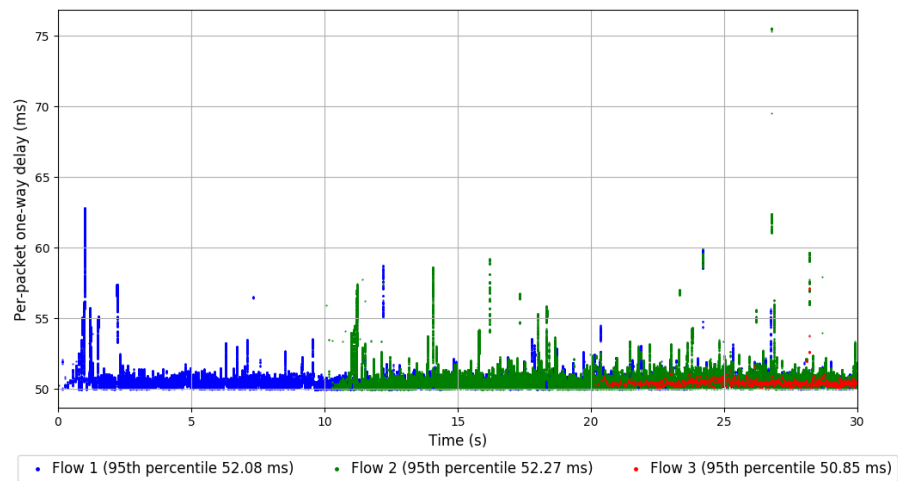
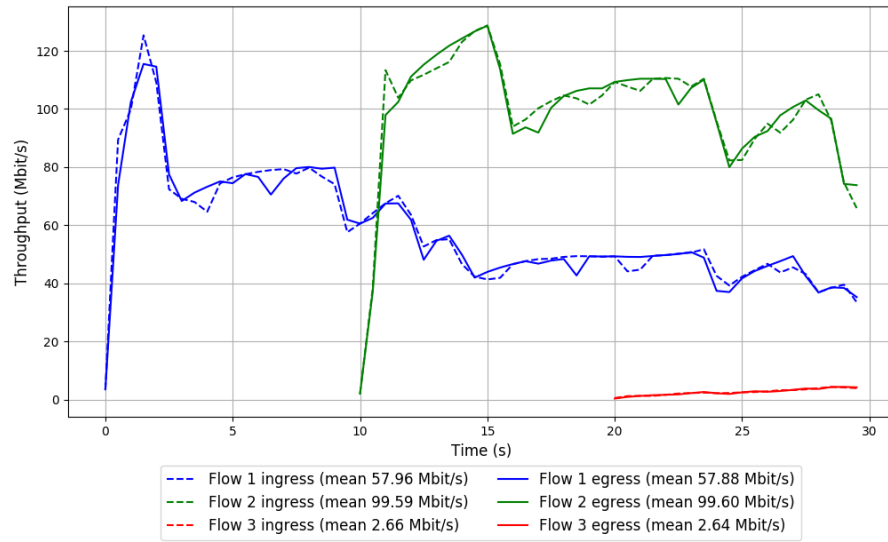
-- Flow 3:

Average throughput: 2.64 Mbit/s

95th percentile per-packet one-way delay: 50.854 ms

Loss rate: 0.64%

Run 7: Report of TCP Cubic — Data Link



Run 8: Statistics of TCP Cubic

Start at: 2017-09-19 01:05:56

End at: 2017-09-19 01:06:26

Below is generated by plot.py at 2017-09-19 03:13:17

Datalink statistics

-- Total of 3 flows:

Average throughput: 135.37 Mbit/s

95th percentile per-packet one-way delay: 55.392 ms

Loss rate: 0.06%

-- Flow 1:

Average throughput: 62.79 Mbit/s

95th percentile per-packet one-way delay: 55.569 ms

Loss rate: 0.06%

-- Flow 2:

Average throughput: 75.80 Mbit/s

95th percentile per-packet one-way delay: 54.431 ms

Loss rate: 0.07%

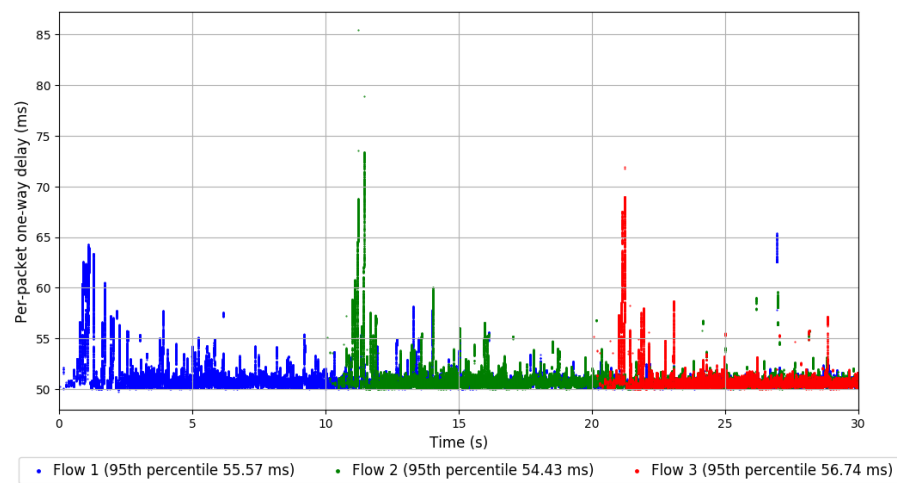
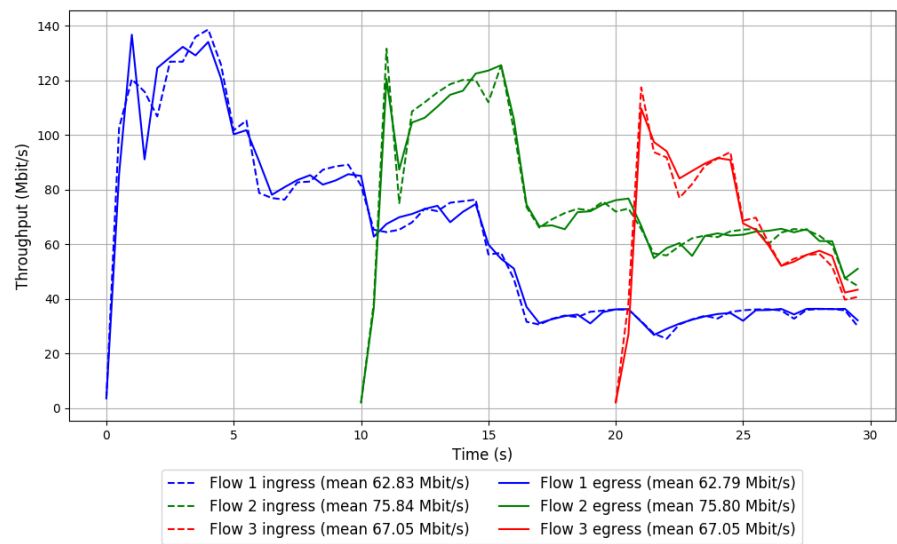
-- Flow 3:

Average throughput: 67.05 Mbit/s

95th percentile per-packet one-way delay: 56.744 ms

Loss rate: 0.04%

Run 8: Report of TCP Cubic — Data Link



Run 9: Statistics of TCP Cubic

Start at: 2017-09-19 01:14:58

End at: 2017-09-19 01:15:28

Below is generated by plot.py at 2017-09-19 03:13:31

Datalink statistics

-- Total of 3 flows:

Average throughput: 103.51 Mbit/s

95th percentile per-packet one-way delay: 52.641 ms

Loss rate: 0.14%

-- Flow 1:

Average throughput: 48.13 Mbit/s

95th percentile per-packet one-way delay: 52.200 ms

Loss rate: 0.15%

-- Flow 2:

Average throughput: 81.72 Mbit/s

95th percentile per-packet one-way delay: 53.185 ms

Loss rate: 0.12%

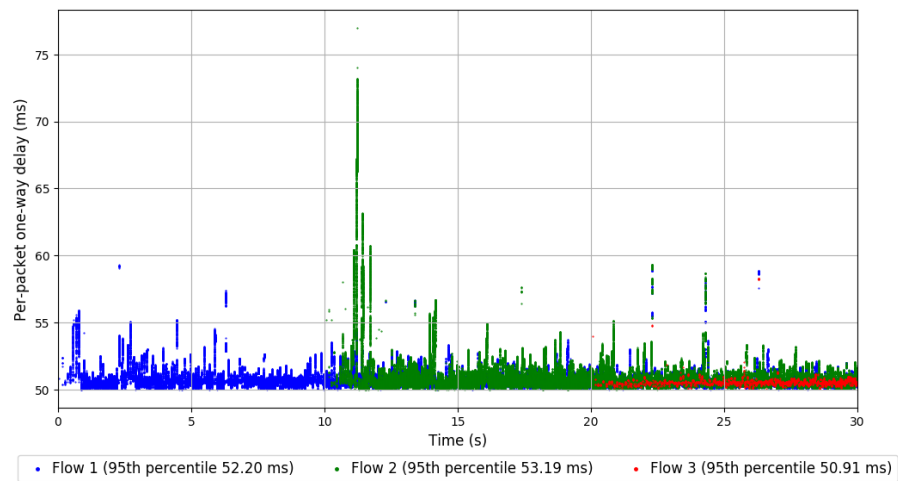
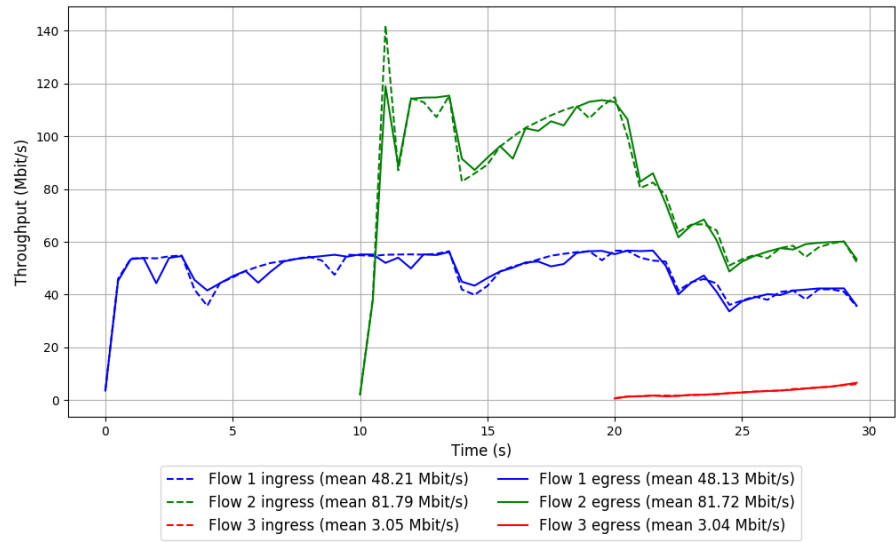
-- Flow 3:

Average throughput: 3.04 Mbit/s

95th percentile per-packet one-way delay: 50.911 ms

Loss rate: 0.60%

Run 9: Report of TCP Cubic — Data Link



Run 10: Statistics of TCP Cubic

Start at: 2017-09-19 01:23:40

End at: 2017-09-19 01:24:10

Below is generated by plot.py at 2017-09-19 03:14:09

Datalink statistics

-- Total of 3 flows:

Average throughput: 129.27 Mbit/s

95th percentile per-packet one-way delay: 54.213 ms

Loss rate: 0.11%

-- Flow 1:

Average throughput: 71.04 Mbit/s

95th percentile per-packet one-way delay: 55.349 ms

Loss rate: 0.14%

-- Flow 2:

Average throughput: 85.40 Mbit/s

95th percentile per-packet one-way delay: 53.564 ms

Loss rate: 0.08%

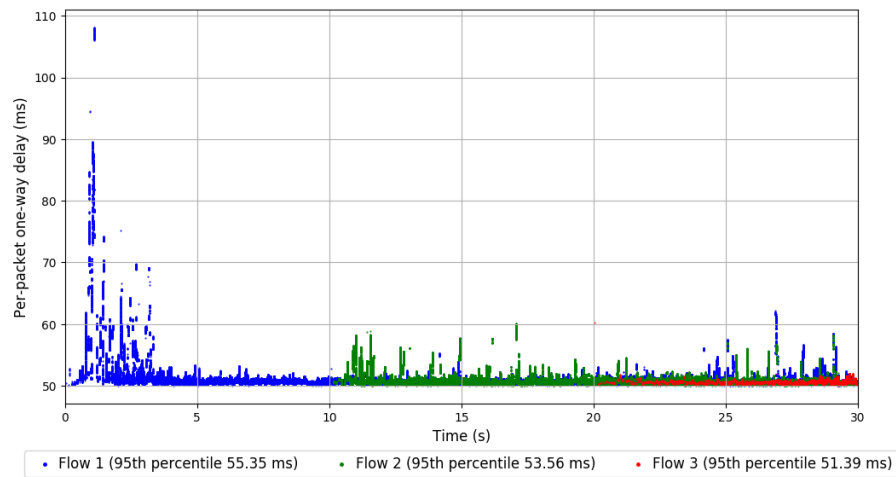
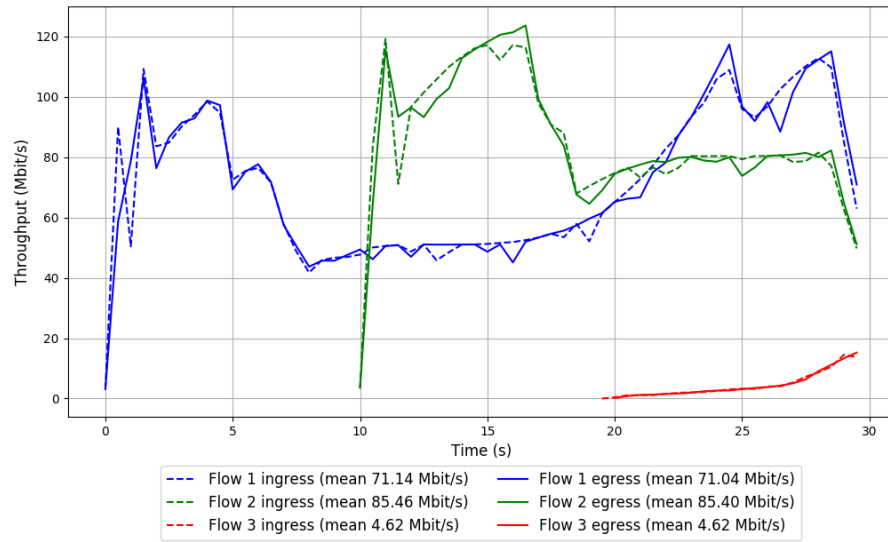
-- Flow 3:

Average throughput: 4.62 Mbit/s

95th percentile per-packet one-way delay: 51.386 ms

Loss rate: 0.24%

Run 10: Report of TCP Cubic — Data Link

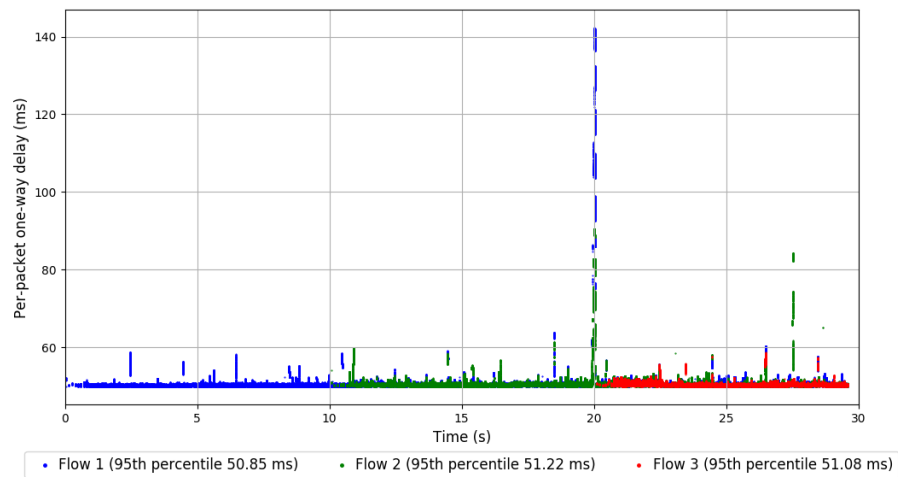
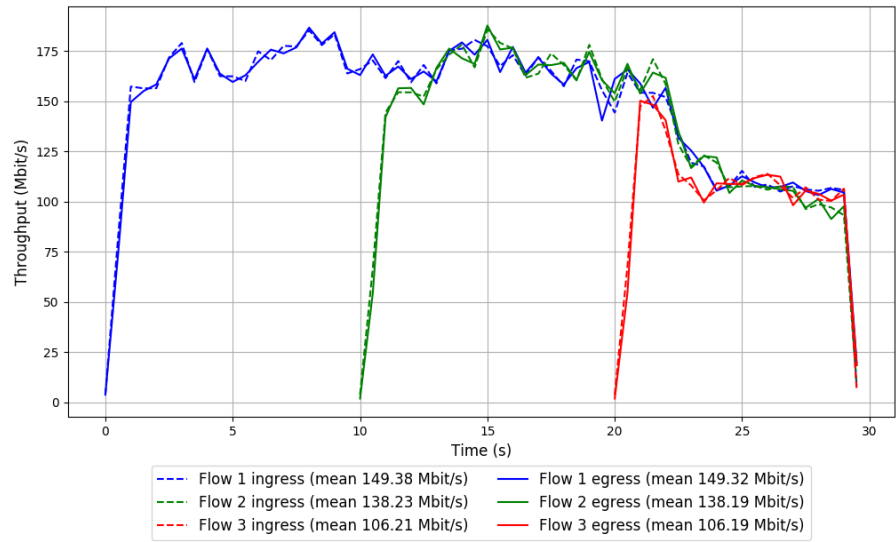


```
Run 1: Statistics of Indigo

Start at: 2017-09-19 00:04:04
End at: 2017-09-19 00:04:34

# Below is generated by plot.py at 2017-09-19 03:17:07
# Datalink statistics
-- Total of 3 flows:
Average throughput: 274.65 Mbit/s
95th percentile per-packet one-way delay: 51.007 ms
Loss rate: 0.04%
-- Flow 1:
Average throughput: 149.32 Mbit/s
95th percentile per-packet one-way delay: 50.854 ms
Loss rate: 0.04%
-- Flow 2:
Average throughput: 138.19 Mbit/s
95th percentile per-packet one-way delay: 51.216 ms
Loss rate: 0.05%
-- Flow 3:
Average throughput: 106.19 Mbit/s
95th percentile per-packet one-way delay: 51.077 ms
Loss rate: 0.02%
```


Run 1: Report of Indigo — Data Link

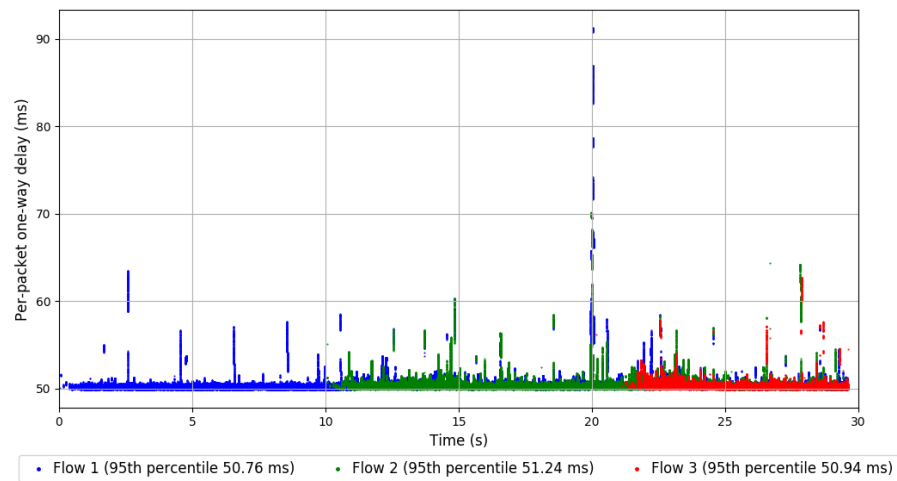
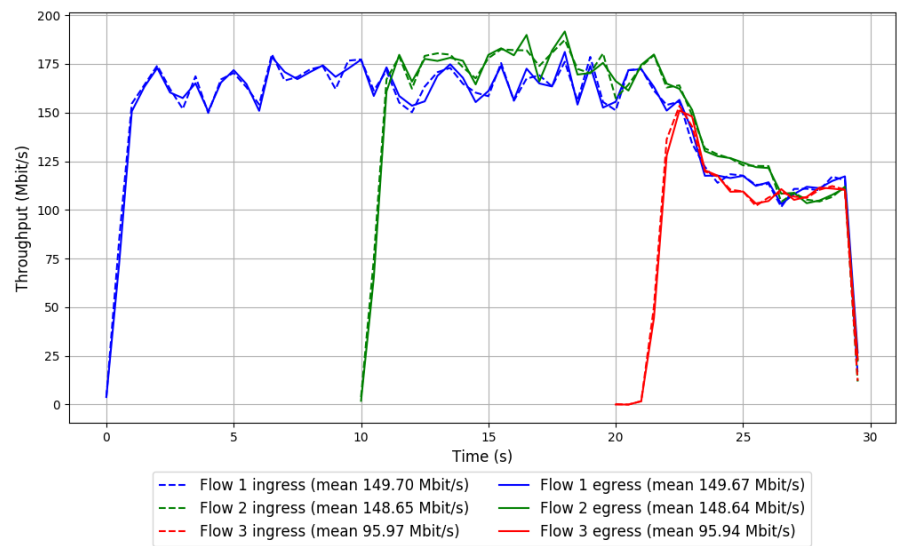


```
Run 2: Statistics of Indigo

Start at: 2017-09-19 00:13:18
End at: 2017-09-19 00:13:48

# Below is generated by plot.py at 2017-09-19 03:17:45
# Datalink statistics
-- Total of 3 flows:
Average throughput: 278.65 Mbit/s
95th percentile per-packet one-way delay: 50.948 ms
Loss rate: 0.02%
-- Flow 1:
Average throughput: 149.67 Mbit/s
95th percentile per-packet one-way delay: 50.762 ms
Loss rate: 0.02%
-- Flow 2:
Average throughput: 148.64 Mbit/s
95th percentile per-packet one-way delay: 51.238 ms
Loss rate: 0.01%
-- Flow 3:
Average throughput: 95.94 Mbit/s
95th percentile per-packet one-way delay: 50.942 ms
Loss rate: 0.06%
```

Run 2: Report of Indigo — Data Link

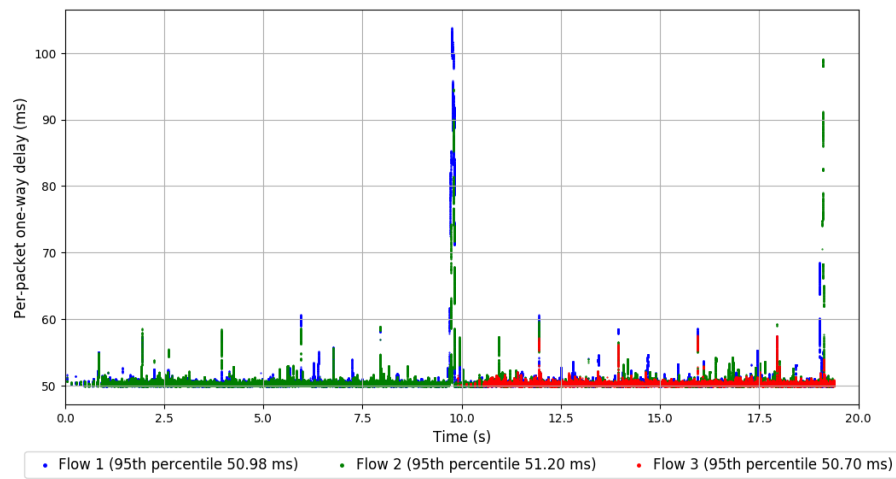
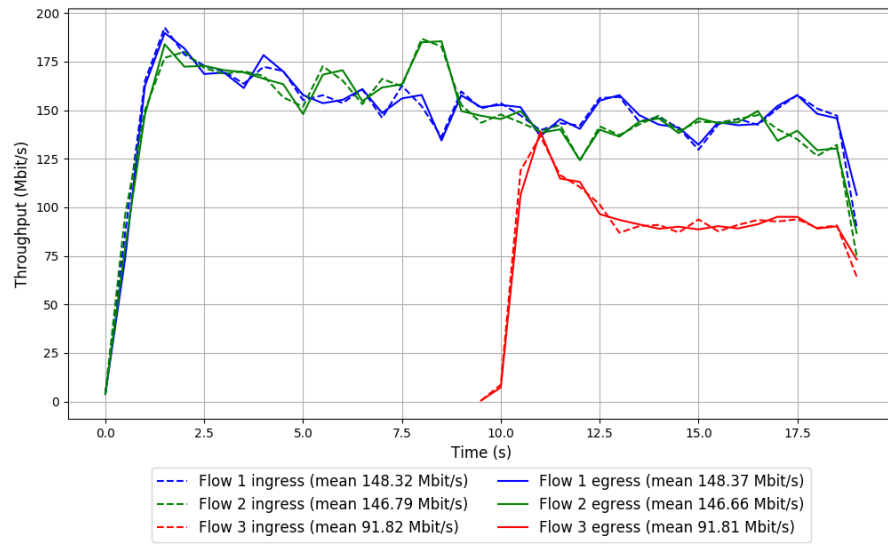


Run 3: Statistics of Indigo

Start at: 2017-09-19 00:22:16

End at: 2017-09-19 00:22:46

Run 3: Report of Indigo — Data Link

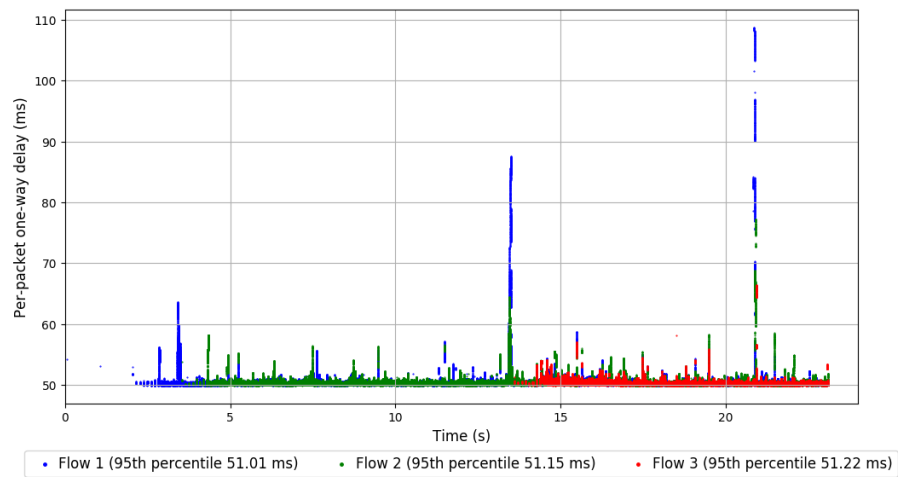
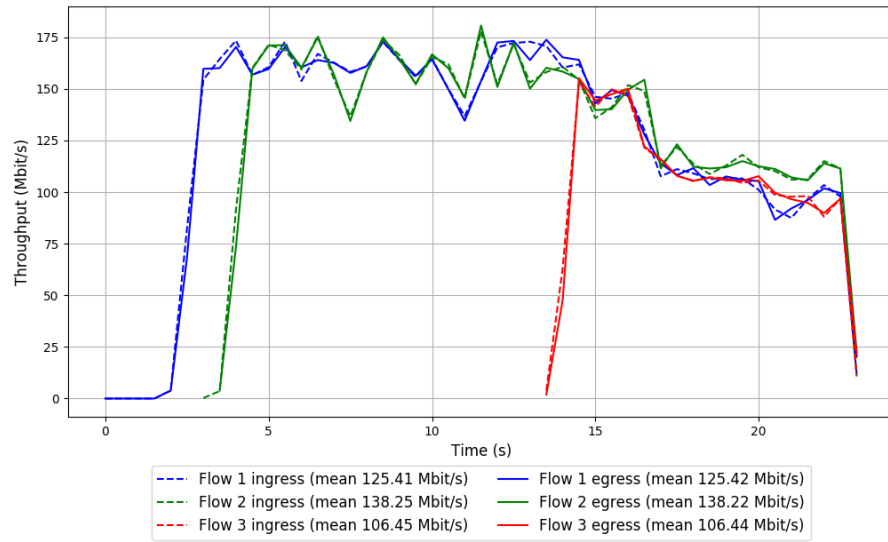


Run 4: Statistics of Indigo

Start at: 2017-09-19 00:31:12

End at: 2017-09-19 00:31:42

Run 4: Report of Indigo — Data Link

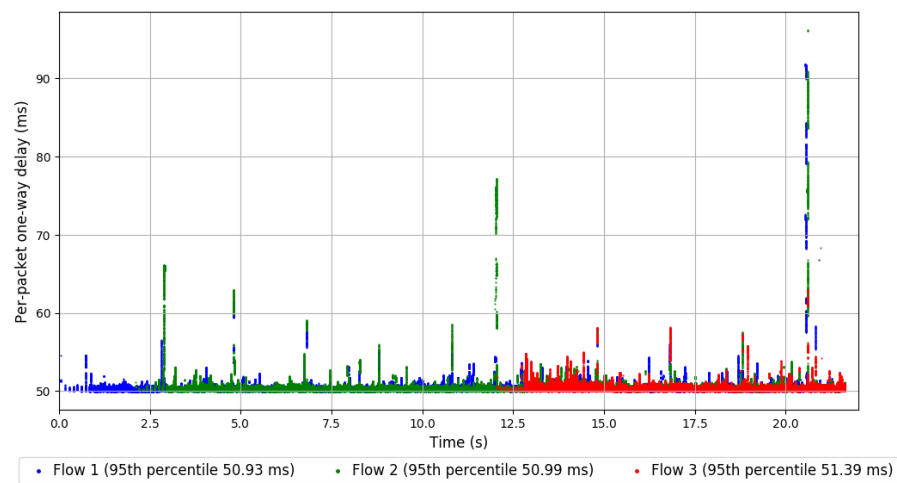
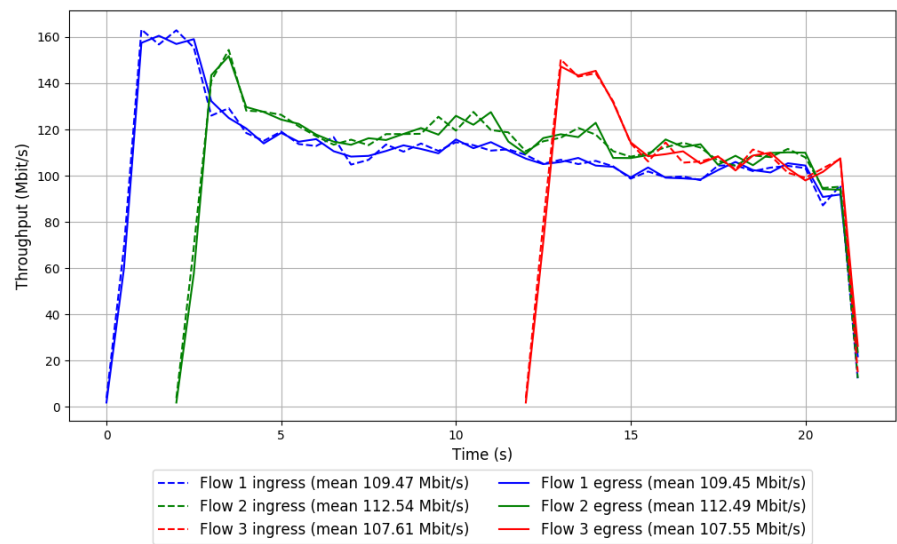


Run 5: Statistics of Indigo

Start at: 2017-09-19 00:40:10

End at: 2017-09-19 00:40:40

Run 5: Report of Indigo — Data Link



Run 6: Statistics of Indigo

Start at: 2017-09-19 00:49:27

End at: 2017-09-19 00:49:57

Below is generated by plot.py at 2017-09-19 03:18:46

Datalink statistics

-- Total of 3 flows:

Average throughput: 258.96 Mbit/s

95th percentile per-packet one-way delay: 50.977 ms

Loss rate: 0.02%

-- Flow 1:

Average throughput: 132.39 Mbit/s

95th percentile per-packet one-way delay: 50.808 ms

Loss rate: 0.01%

-- Flow 2:

Average throughput: 142.02 Mbit/s

95th percentile per-packet one-way delay: 51.015 ms

Loss rate: 0.02%

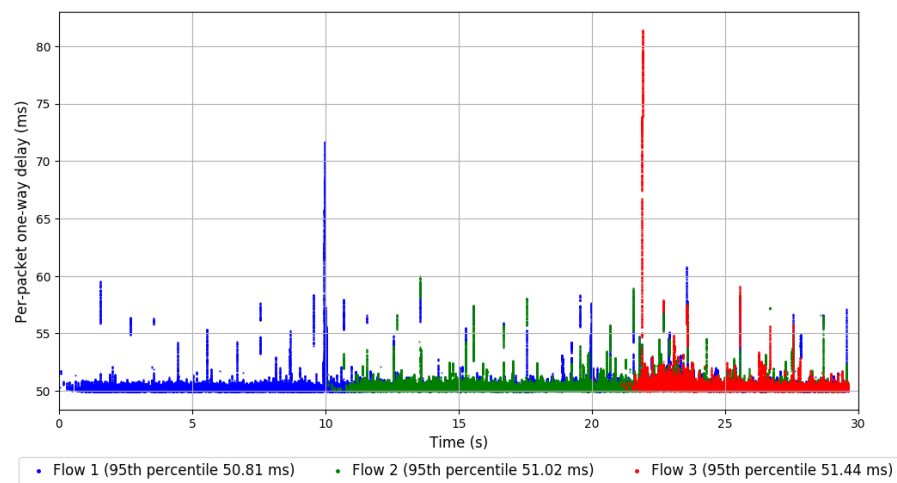
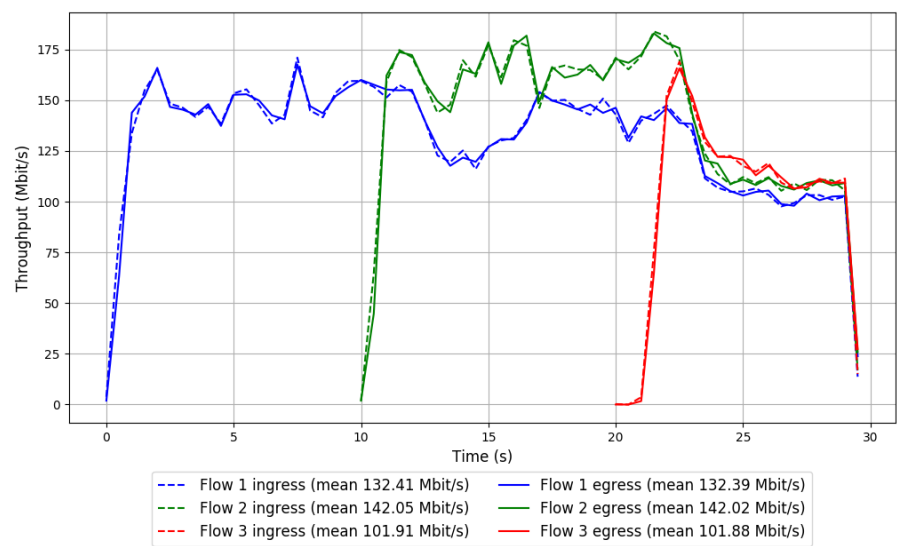
-- Flow 3:

Average throughput: 101.88 Mbit/s

95th percentile per-packet one-way delay: 51.444 ms

Loss rate: 0.04%

Run 6: Report of Indigo — Data Link



Run 7: Statistics of Indigo

Start at: 2017-09-19 00:58:44

End at: 2017-09-19 00:59:14

Below is generated by plot.py at 2017-09-19 03:19:26

Datalink statistics

-- Total of 3 flows:

Average throughput: 282.95 Mbit/s

95th percentile per-packet one-way delay: 51.132 ms

Loss rate: 0.05%

-- Flow 1:

Average throughput: 157.86 Mbit/s

95th percentile per-packet one-way delay: 50.790 ms

Loss rate: 0.05%

-- Flow 2:

Average throughput: 136.56 Mbit/s

95th percentile per-packet one-way delay: 51.417 ms

Loss rate: 0.05%

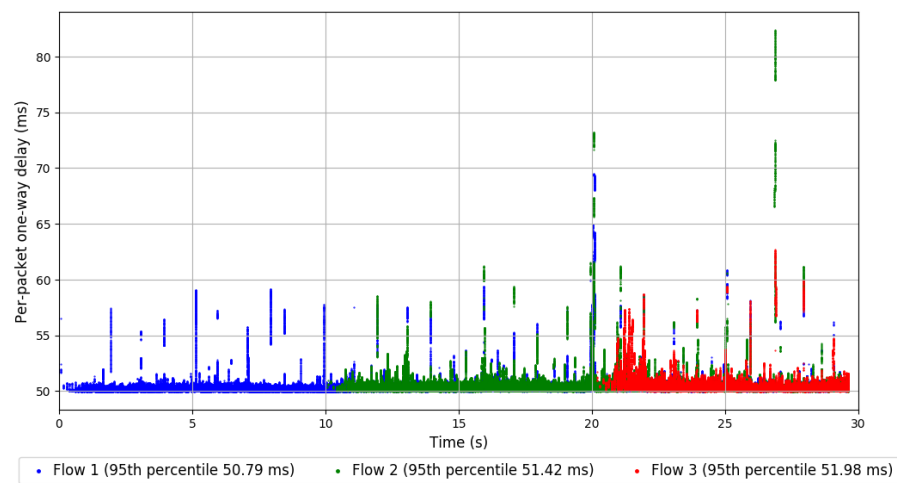
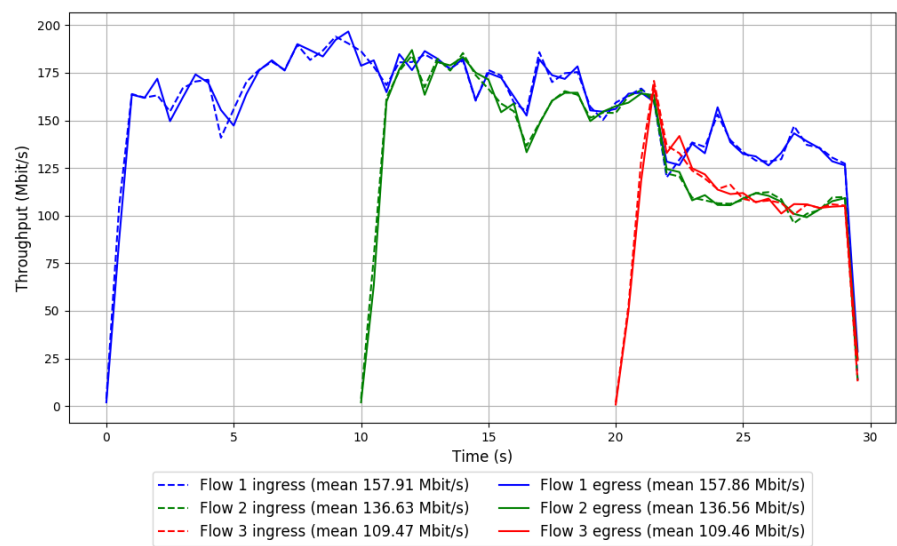
-- Flow 3:

Average throughput: 109.46 Mbit/s

95th percentile per-packet one-way delay: 51.975 ms

Loss rate: 0.02%

Run 7: Report of Indigo — Data Link

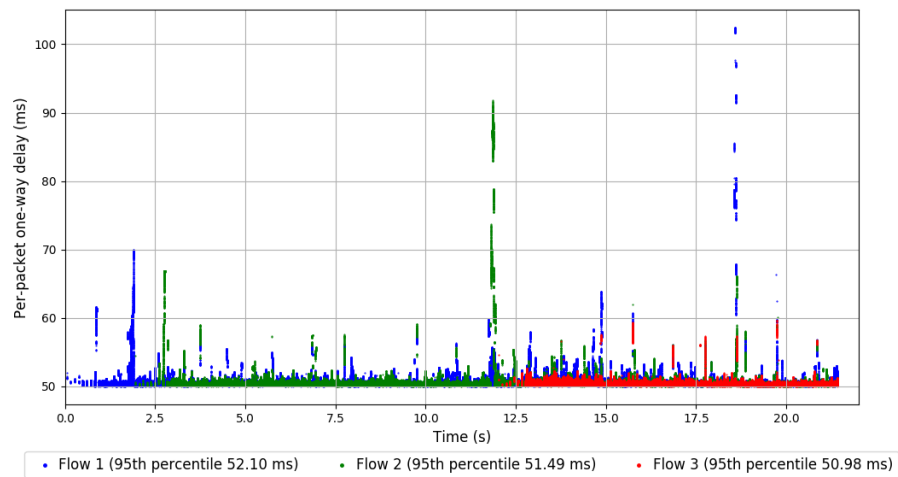
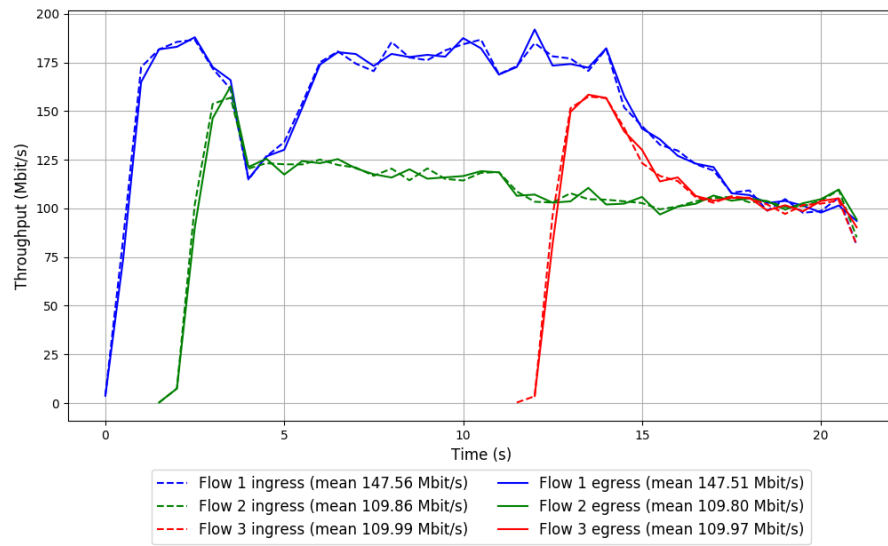


Run 8: Statistics of Indigo

Start at: 2017-09-19 01:07:48

End at: 2017-09-19 01:08:18

Run 8: Report of Indigo — Data Link

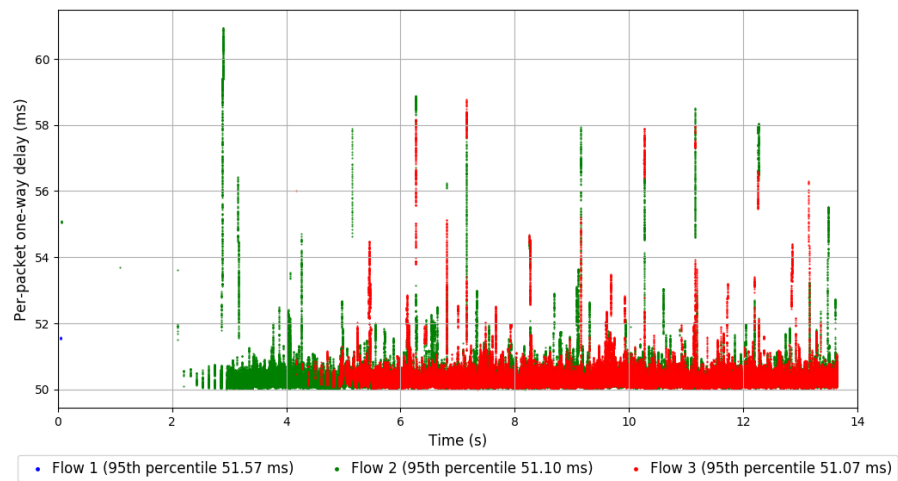
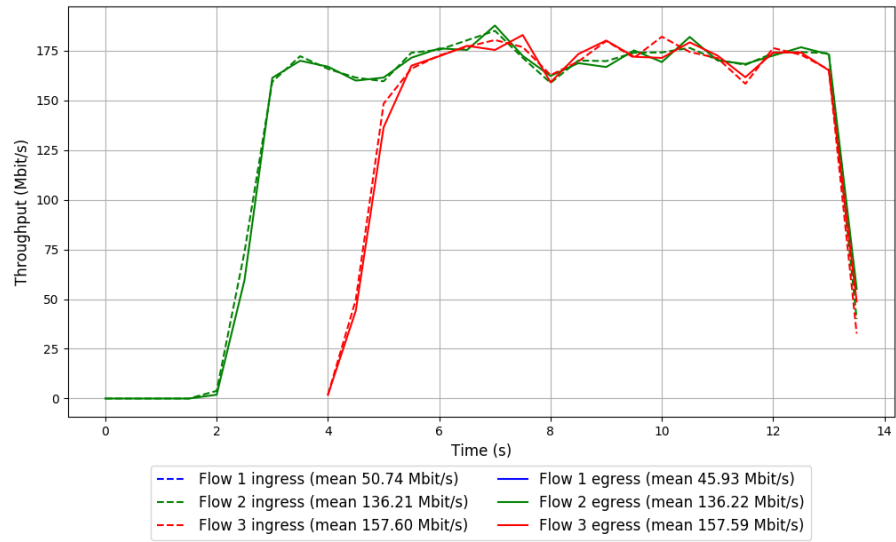


Run 9: Statistics of Indigo

Start at: 2017-09-19 01:16:41

End at: 2017-09-19 01:17:11

Run 9: Report of Indigo — Data Link



Run 10: Statistics of Indigo

Start at: 2017-09-19 01:25:49

End at: 2017-09-19 01:26:19

Below is generated by plot.py at 2017-09-19 03:20:59

Datalink statistics

-- Total of 3 flows:

Average throughput: 227.04 Mbit/s

95th percentile per-packet one-way delay: 50.823 ms

Loss rate: 0.04%

-- Flow 1:

Average throughput: 126.61 Mbit/s

95th percentile per-packet one-way delay: 50.787 ms

Loss rate: 0.05%

-- Flow 2:

Average throughput: 97.96 Mbit/s

95th percentile per-packet one-way delay: 50.876 ms

Loss rate: 0.03%

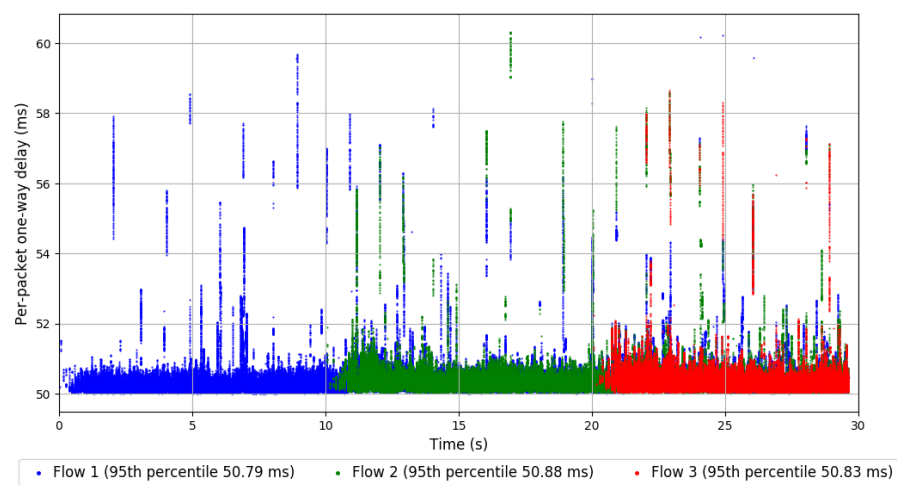
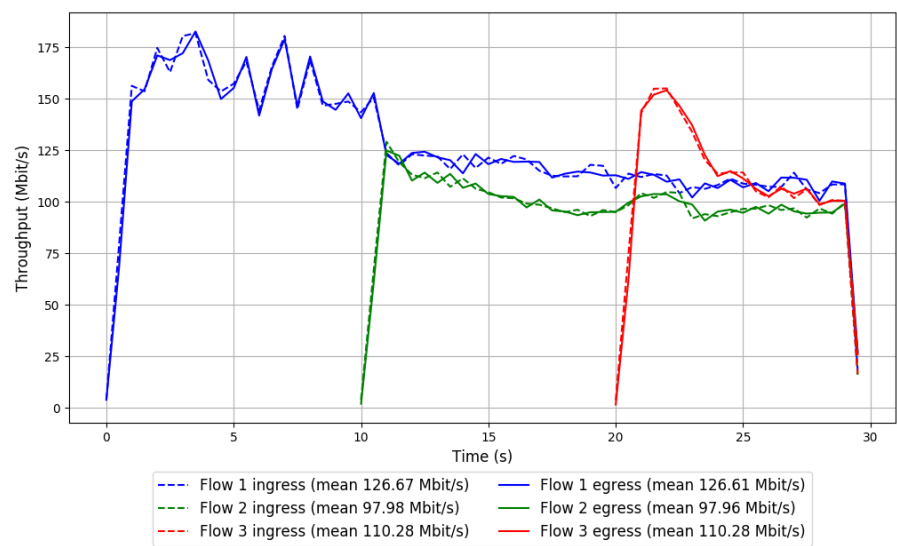
-- Flow 3:

Average throughput: 110.28 Mbit/s

95th percentile per-packet one-way delay: 50.825 ms

Loss rate: 0.02%

Run 10: Report of Indigo — Data Link

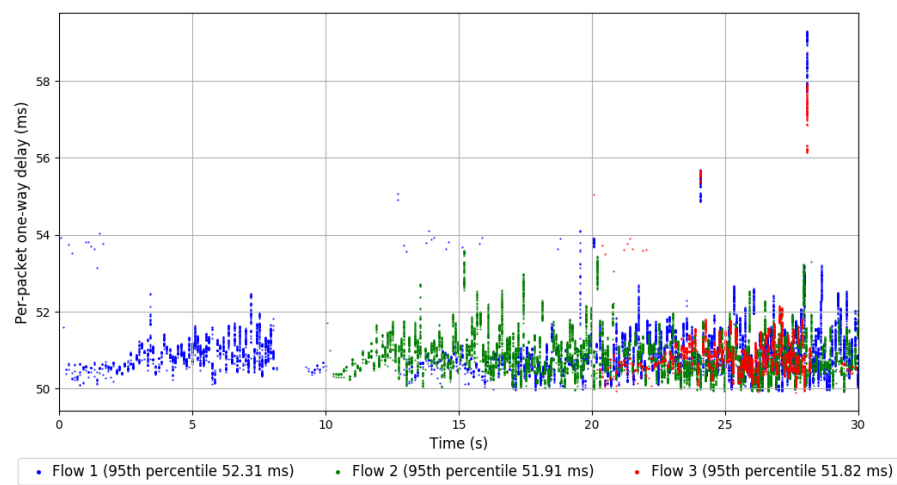
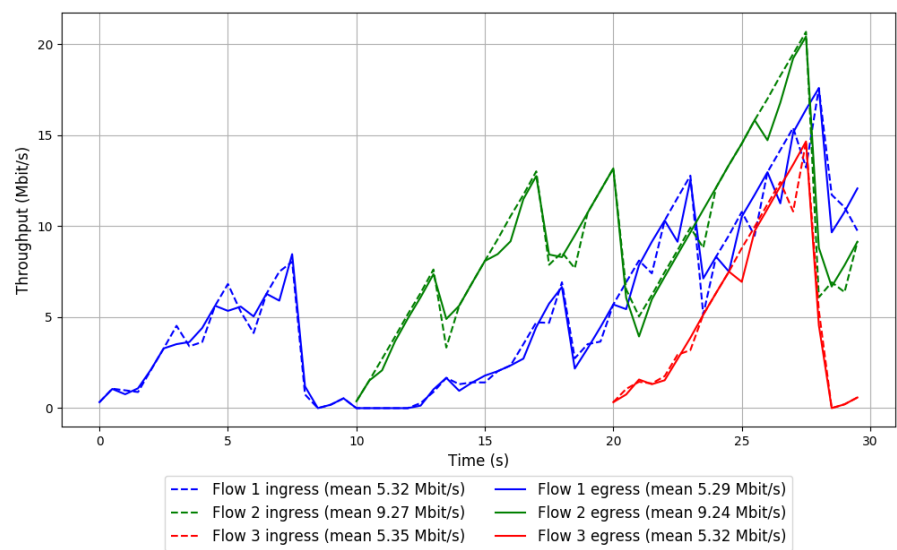


```
Run 1: Statistics of LEDBAT

Start at: 2017-09-19 00:07:53
End at: 2017-09-19 00:08:23

# Below is generated by plot.py at 2017-09-19 03:20:59
# Datalink statistics
-- Total of 3 flows:
Average throughput: 13.17 Mbit/s
95th percentile per-packet one-way delay: 52.023 ms
Loss rate: 0.52%
-- Flow 1:
Average throughput: 5.29 Mbit/s
95th percentile per-packet one-way delay: 52.308 ms
Loss rate: 0.60%
-- Flow 2:
Average throughput: 9.24 Mbit/s
95th percentile per-packet one-way delay: 51.910 ms
Loss rate: 0.38%
-- Flow 3:
Average throughput: 5.32 Mbit/s
95th percentile per-packet one-way delay: 51.823 ms
Loss rate: 0.78%
```

Run 1: Report of LEDBAT — Data Link

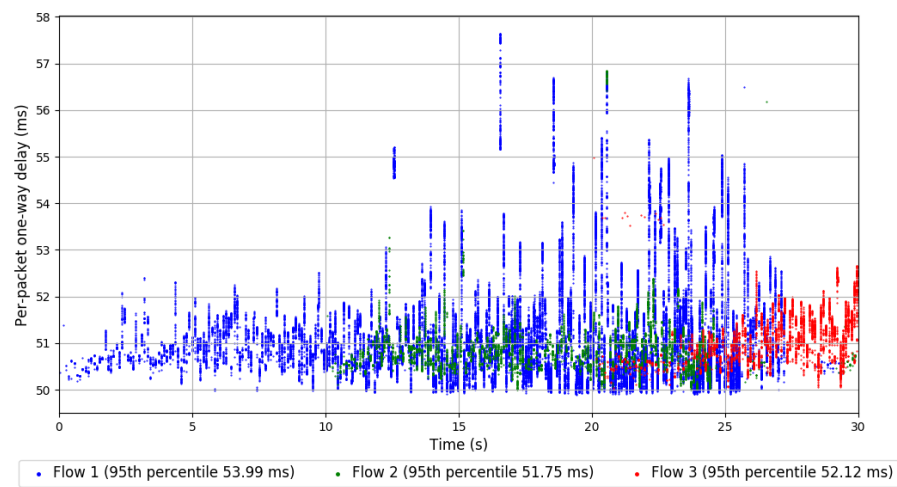
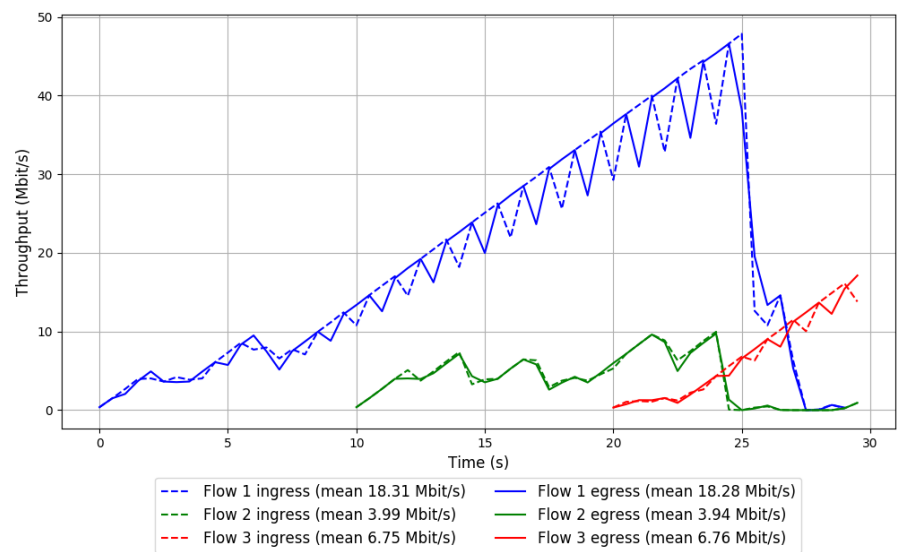


```
Run 2: Statistics of LEDBAT

Start at: 2017-09-19 00:17:06
End at: 2017-09-19 00:17:36

# Below is generated by plot.py at 2017-09-19 03:20:59
# Datalink statistics
-- Total of 3 flows:
Average throughput: 22.75 Mbit/s
95th percentile per-packet one-way delay: 53.692 ms
Loss rate: 0.29%
-- Flow 1:
Average throughput: 18.28 Mbit/s
95th percentile per-packet one-way delay: 53.995 ms
Loss rate: 0.15%
-- Flow 2:
Average throughput: 3.94 Mbit/s
95th percentile per-packet one-way delay: 51.749 ms
Loss rate: 1.45%
-- Flow 3:
Average throughput: 6.76 Mbit/s
95th percentile per-packet one-way delay: 52.121 ms
Loss rate: 0.00%
```

Run 2: Report of LEDBAT — Data Link



Run 3: Statistics of LEDBAT

Start at: 2017-09-19 00:26:01

End at: 2017-09-19 00:26:31

Below is generated by plot.py at 2017-09-19 03:20:59

Datalink statistics

-- Total of 3 flows:

Average throughput: 12.76 Mbit/s

95th percentile per-packet one-way delay: 52.209 ms

Loss rate: 0.29%

-- Flow 1:

Average throughput: 4.06 Mbit/s

95th percentile per-packet one-way delay: 52.102 ms

Loss rate: 0.46%

-- Flow 2:

Average throughput: 12.27 Mbit/s

95th percentile per-packet one-way delay: 52.242 ms

Loss rate: 0.23%

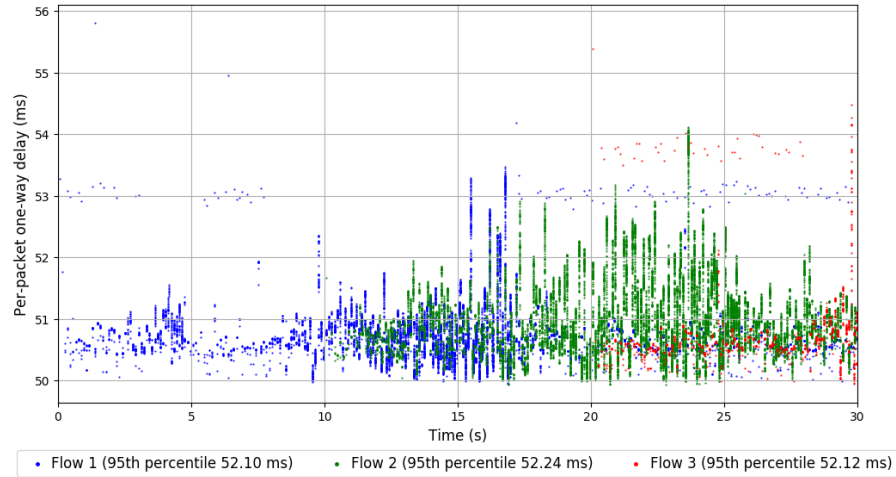
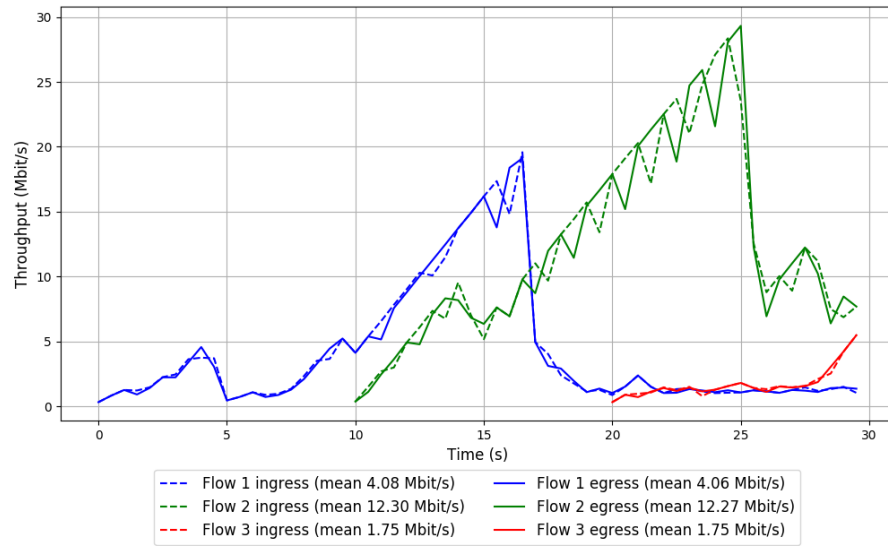
-- Flow 3:

Average throughput: 1.75 Mbit/s

95th percentile per-packet one-way delay: 52.121 ms

Loss rate: 0.00%

Run 3: Report of LEDBAT — Data Link



Run 4: Statistics of LEDBAT

Start at: 2017-09-19 00:34:58

End at: 2017-09-19 00:35:28

Below is generated by plot.py at 2017-09-19 03:20:59

Datalink statistics

-- Total of 3 flows:

Average throughput: 4.72 Mbit/s

95th percentile per-packet one-way delay: 51.558 ms

Loss rate: 0.40%

-- Flow 1:

Average throughput: 2.72 Mbit/s

95th percentile per-packet one-way delay: 51.578 ms

Loss rate: 0.25%

-- Flow 2:

Average throughput: 2.37 Mbit/s

95th percentile per-packet one-way delay: 51.587 ms

Loss rate: 0.00%

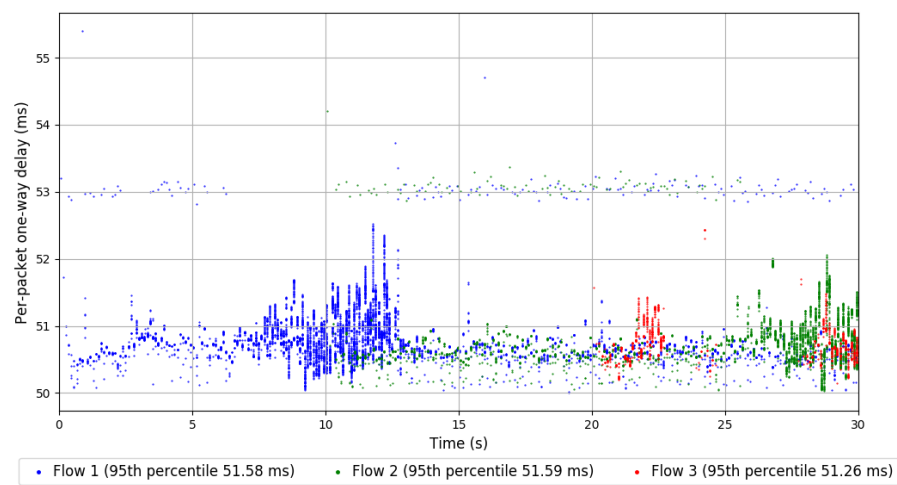
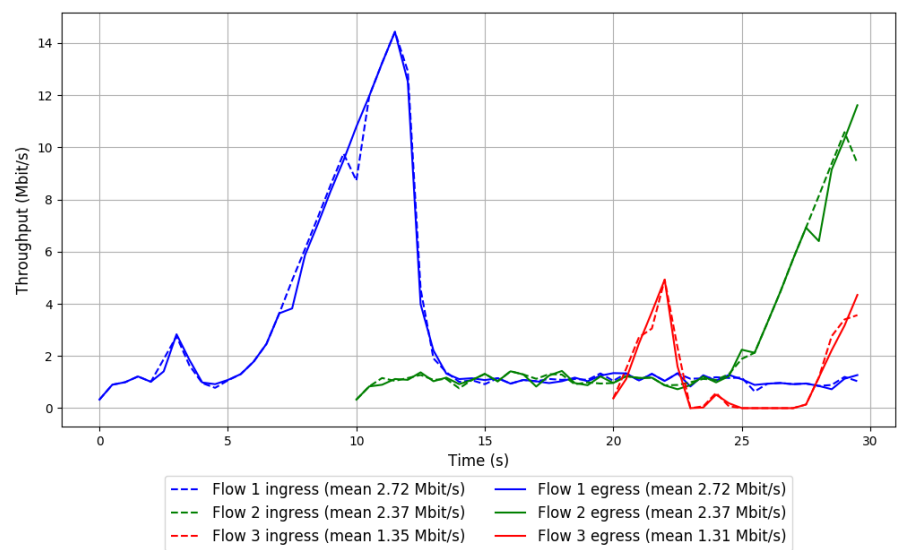
-- Flow 3:

Average throughput: 1.31 Mbit/s

95th percentile per-packet one-way delay: 51.259 ms

Loss rate: 2.73%

Run 4: Report of LEDBAT — Data Link



Run 5: Statistics of LEDBAT

Start at: 2017-09-19 00:43:54

End at: 2017-09-19 00:44:24

Below is generated by plot.py at 2017-09-19 03:20:59

Datalink statistics

-- Total of 3 flows:

Average throughput: 22.77 Mbit/s

95th percentile per-packet one-way delay: 52.818 ms

Loss rate: 0.17%

-- Flow 1:

Average throughput: 9.35 Mbit/s

95th percentile per-packet one-way delay: 52.389 ms

Loss rate: 0.24%

-- Flow 2:

Average throughput: 16.85 Mbit/s

95th percentile per-packet one-way delay: 53.306 ms

Loss rate: 0.10%

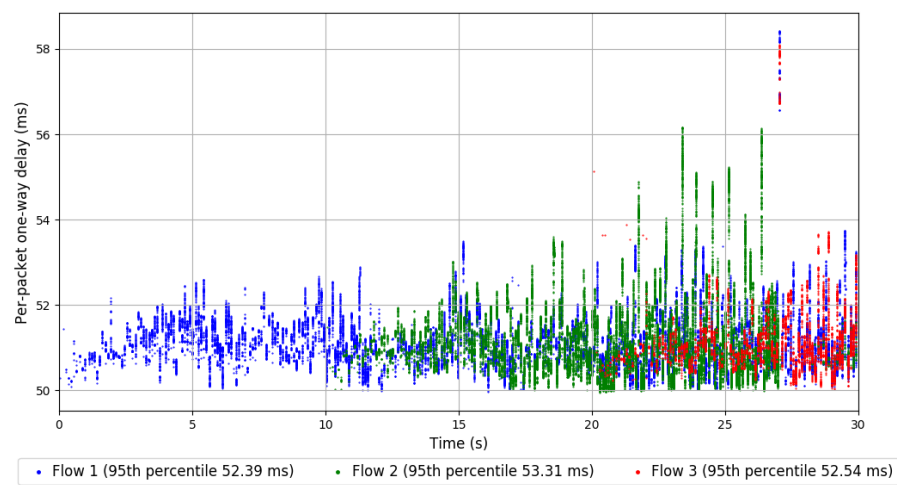
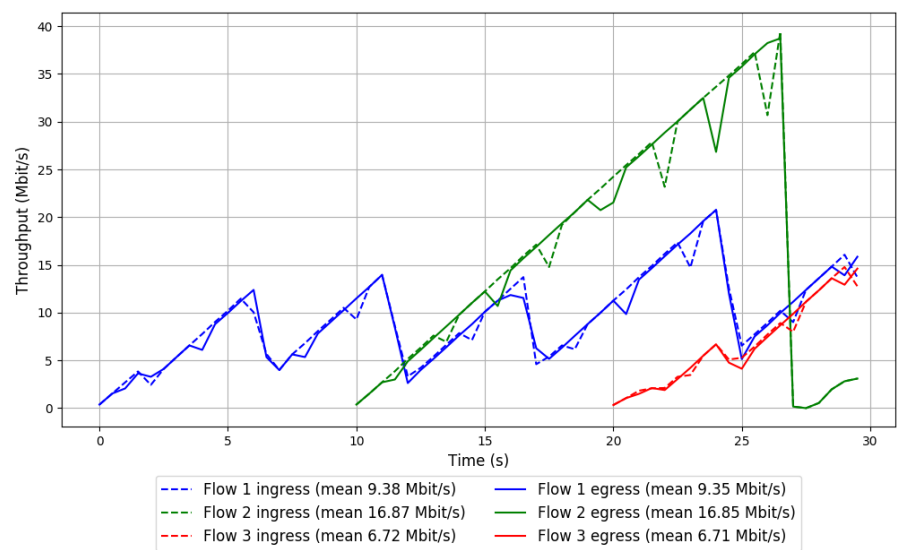
-- Flow 3:

Average throughput: 6.71 Mbit/s

95th percentile per-packet one-way delay: 52.537 ms

Loss rate: 0.25%

Run 5: Report of LEDBAT — Data Link



Run 6: Statistics of LEDBAT

Start at: 2017-09-19 00:53:15

End at: 2017-09-19 00:53:45

Below is generated by plot.py at 2017-09-19 03:20:59

Datalink statistics

-- Total of 3 flows:

Average throughput: 15.77 Mbit/s

95th percentile per-packet one-way delay: 51.577 ms

Loss rate: 0.39%

-- Flow 1:

Average throughput: 7.57 Mbit/s

95th percentile per-packet one-way delay: 51.464 ms

Loss rate: 0.48%

-- Flow 2:

Average throughput: 7.68 Mbit/s

95th percentile per-packet one-way delay: 51.651 ms

Loss rate: 0.50%

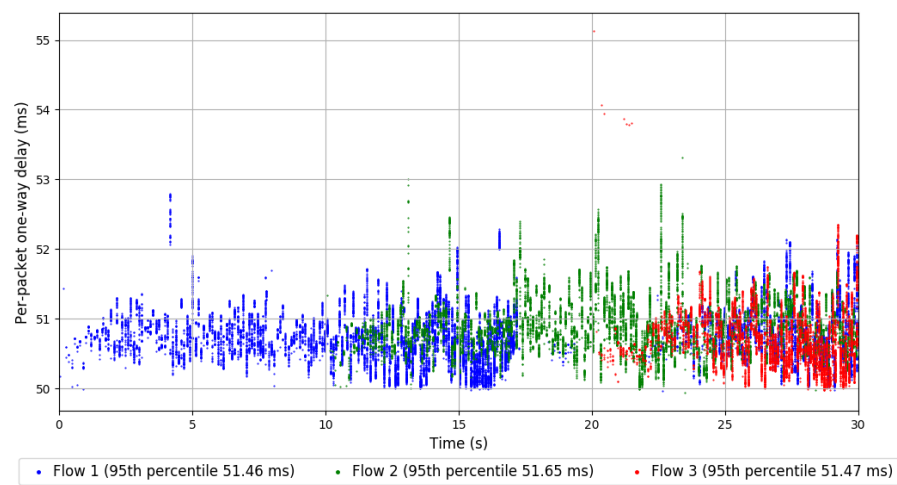
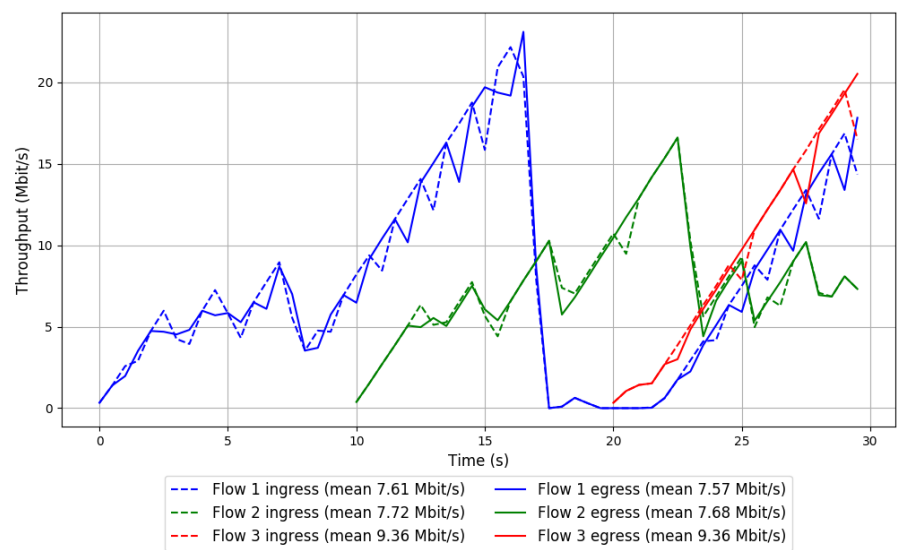
-- Flow 3:

Average throughput: 9.36 Mbit/s

95th percentile per-packet one-way delay: 51.467 ms

Loss rate: 0.00%

Run 6: Report of LEDBAT — Data Link



Run 7: Statistics of LEDBAT

Start at: 2017-09-19 01:02:35

End at: 2017-09-19 01:03:05

Below is generated by plot.py at 2017-09-19 03:20:59

Datalink statistics

-- Total of 3 flows:

Average throughput: 16.98 Mbit/s

95th percentile per-packet one-way delay: 52.803 ms

Loss rate: 0.15%

-- Flow 1:

Average throughput: 6.88 Mbit/s

95th percentile per-packet one-way delay: 53.075 ms

Loss rate: 0.14%

-- Flow 2:

Average throughput: 13.89 Mbit/s

95th percentile per-packet one-way delay: 52.554 ms

Loss rate: 0.20%

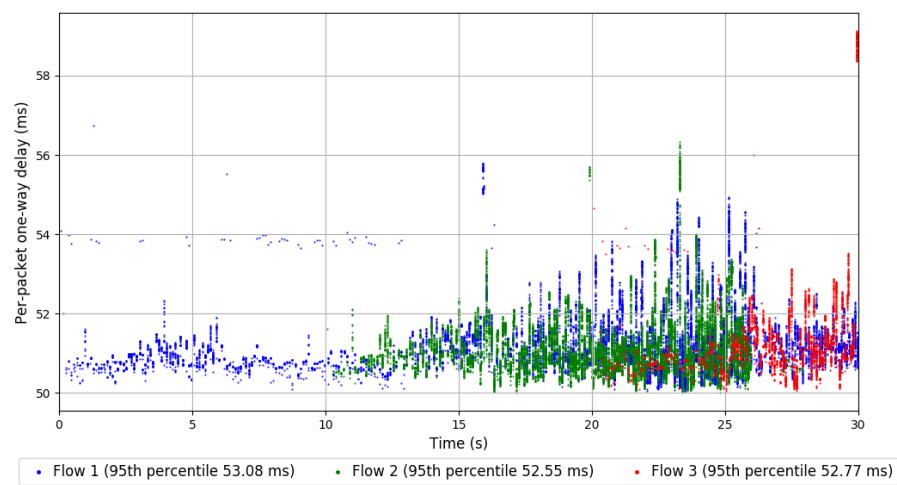
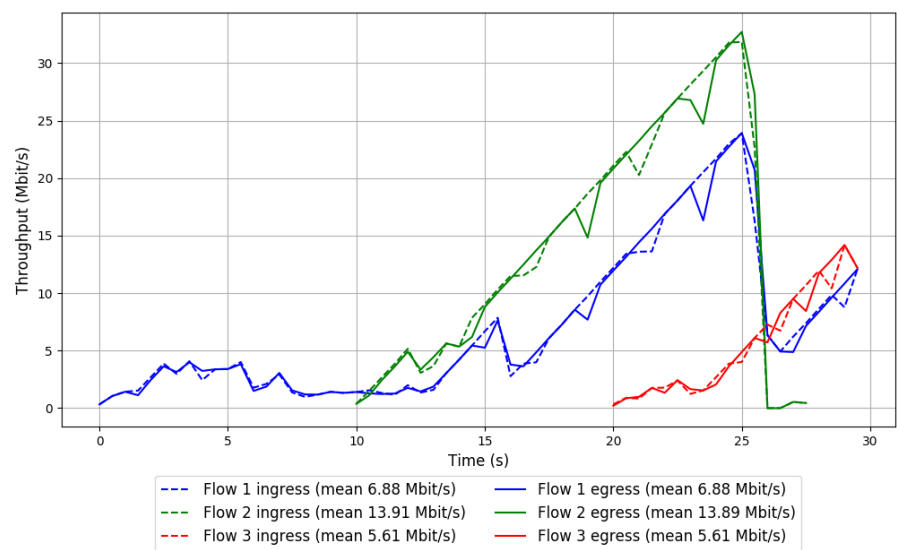
-- Flow 3:

Average throughput: 5.61 Mbit/s

95th percentile per-packet one-way delay: 52.769 ms

Loss rate: 0.00%

Run 7: Report of LEDBAT — Data Link



Run 8: Statistics of LEDBAT

Start at: 2017-09-19 01:11:33

End at: 2017-09-19 01:12:03

Below is generated by plot.py at 2017-09-19 03:20:59

Datalink statistics

-- Total of 3 flows:

Average throughput: 48.57 Mbit/s

95th percentile per-packet one-way delay: 53.000 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 30.73 Mbit/s

95th percentile per-packet one-way delay: 53.051 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 21.57 Mbit/s

95th percentile per-packet one-way delay: 52.981 ms

Loss rate: 0.00%

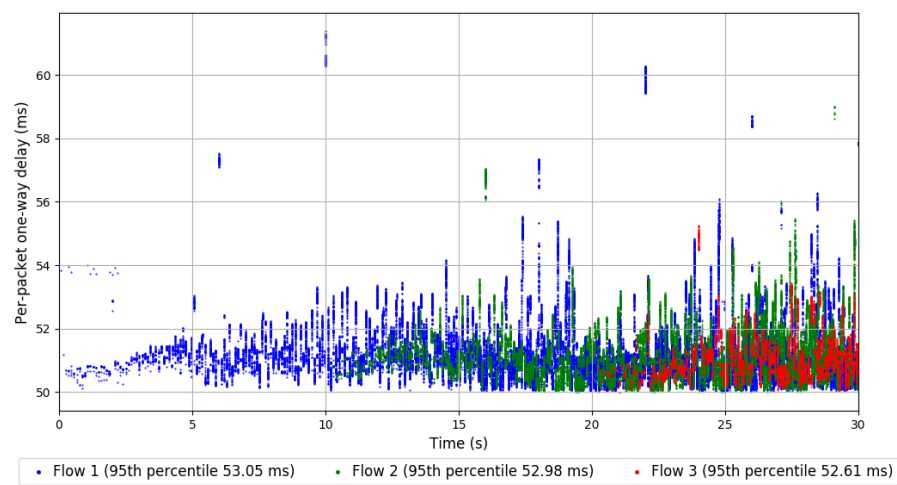
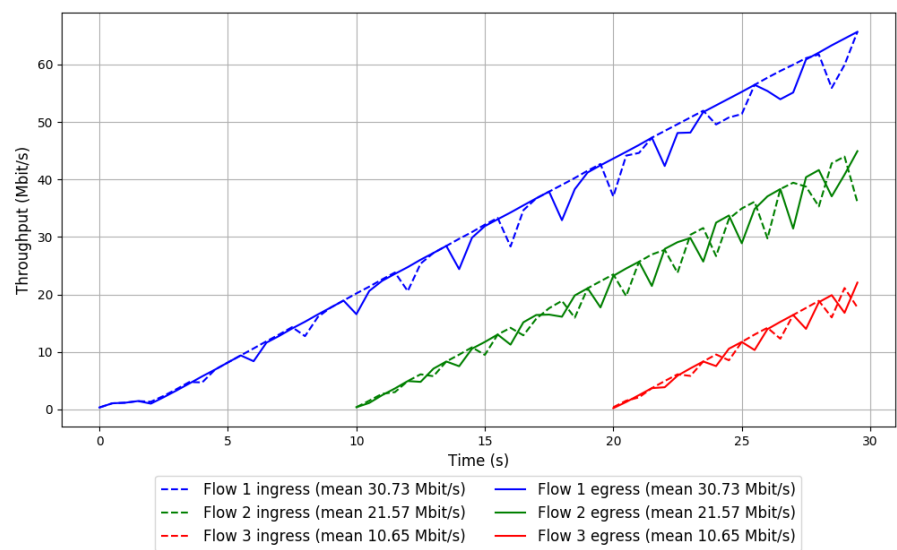
-- Flow 3:

Average throughput: 10.65 Mbit/s

95th percentile per-packet one-way delay: 52.612 ms

Loss rate: 0.00%

Run 8: Report of LEDBAT — Data Link



Run 9: Statistics of LEDBAT

Start at: 2017-09-19 01:20:16

End at: 2017-09-19 01:20:46

Below is generated by plot.py at 2017-09-19 03:20:59

Datalink statistics

-- Total of 3 flows:

Average throughput: 16.83 Mbit/s

95th percentile per-packet one-way delay: 51.772 ms

Loss rate: 0.29%

-- Flow 1:

Average throughput: 7.52 Mbit/s

95th percentile per-packet one-way delay: 51.691 ms

Loss rate: 0.47%

-- Flow 2:

Average throughput: 9.85 Mbit/s

95th percentile per-packet one-way delay: 51.926 ms

Loss rate: 0.11%

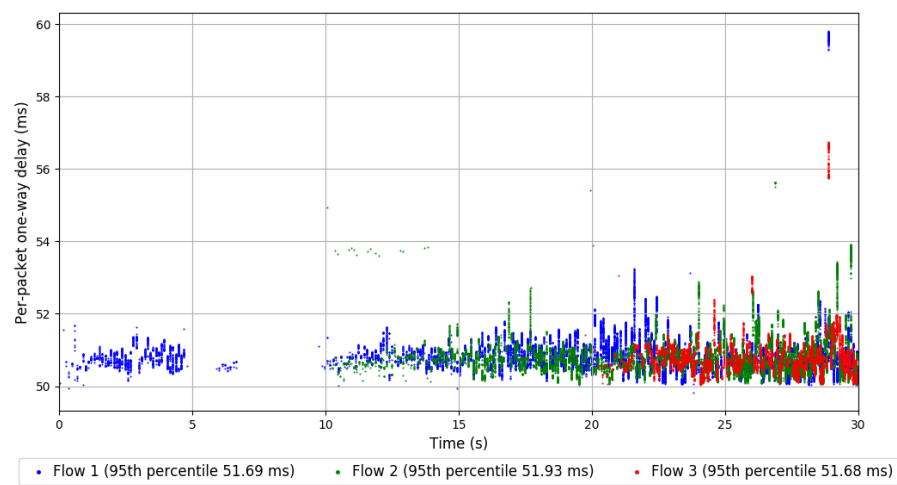
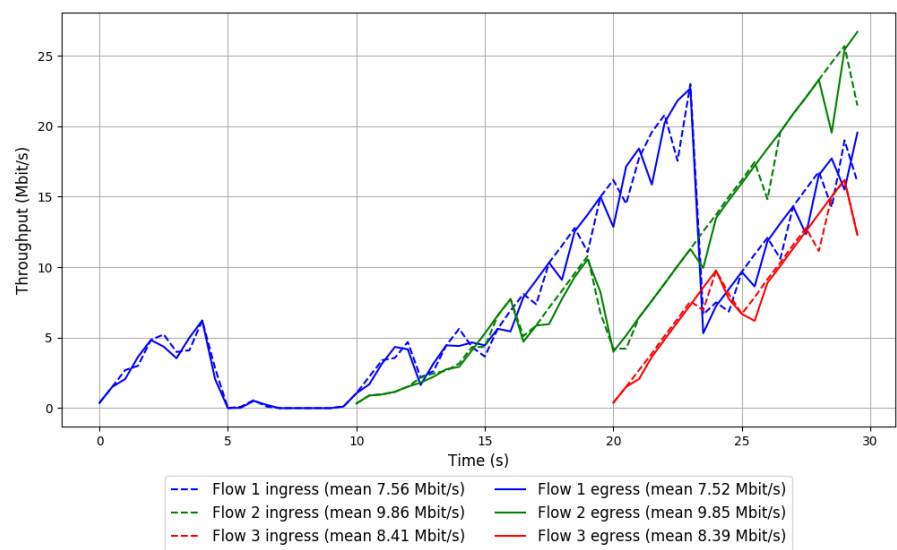
-- Flow 3:

Average throughput: 8.39 Mbit/s

95th percentile per-packet one-way delay: 51.679 ms

Loss rate: 0.21%

Run 9: Report of LEDBAT — Data Link

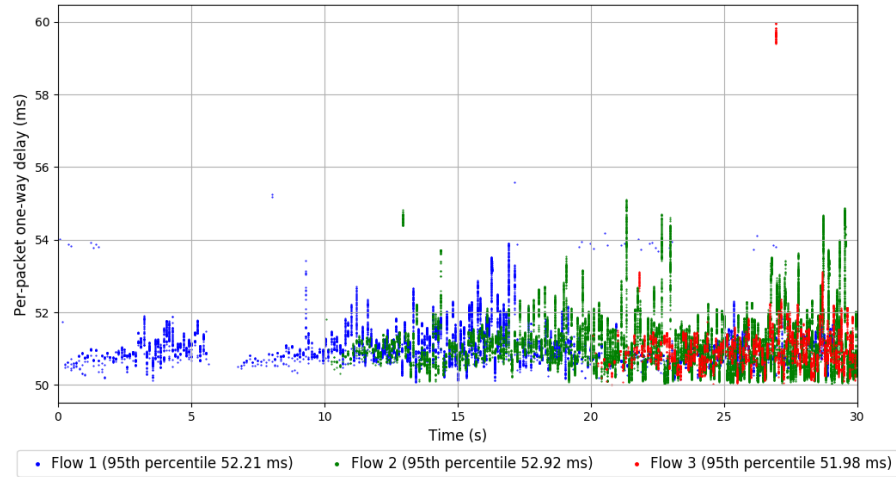
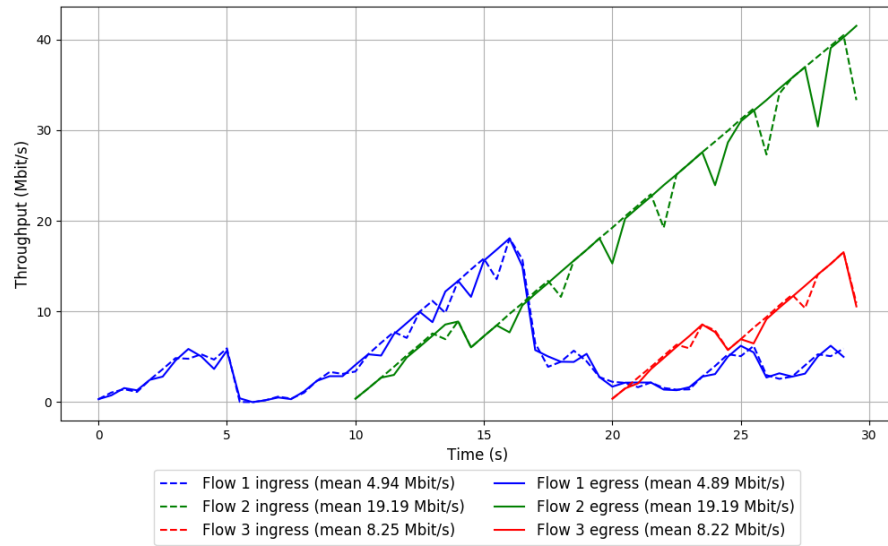


```
Run 10: Statistics of LEDBAT

Start at: 2017-09-19 01:29:34
End at: 2017-09-19 01:30:04

# Below is generated by plot.py at 2017-09-19 03:20:59
# Datalink statistics
-- Total of 3 flows:
Average throughput: 20.29 Mbit/s
95th percentile per-packet one-way delay: 52.594 ms
Loss rate: 0.31%
-- Flow 1:
Average throughput: 4.89 Mbit/s
95th percentile per-packet one-way delay: 52.206 ms
Loss rate: 1.10%
-- Flow 2:
Average throughput: 19.19 Mbit/s
95th percentile per-packet one-way delay: 52.920 ms
Loss rate: 0.01%
-- Flow 3:
Average throughput: 8.22 Mbit/s
95th percentile per-packet one-way delay: 51.982 ms
Loss rate: 0.35%
```

Run 10: Report of LEDBAT — Data Link

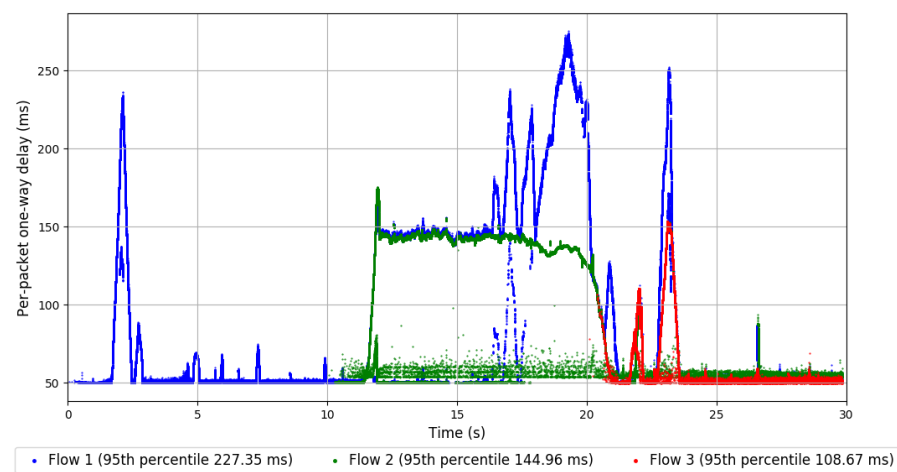
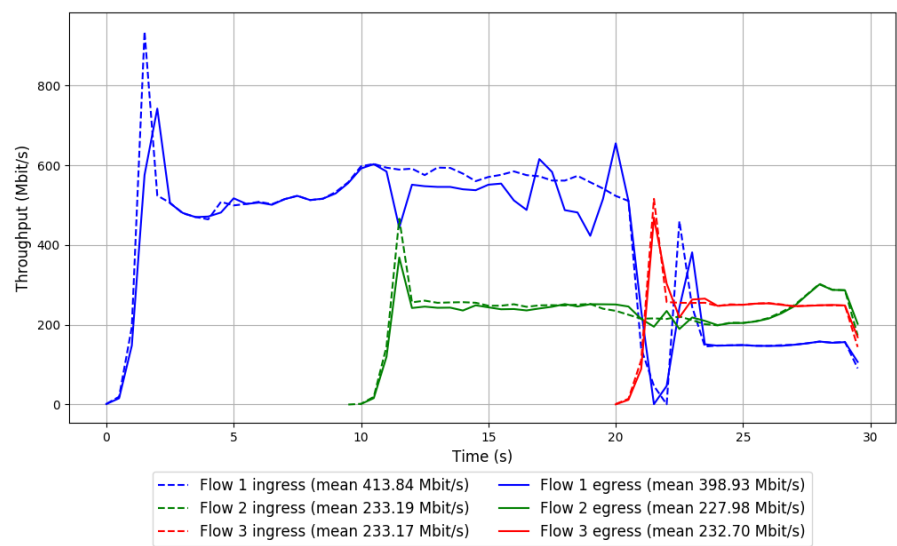


```
Run 1: Statistics of PCC

Start at: 2017-09-19 00:06:44
End at: 2017-09-19 00:07:14

# Below is generated by plot.py at 2017-09-19 03:31:05
# Datalink statistics
-- Total of 3 flows:
Average throughput: 626.55 Mbit/s
95th percentile per-packet one-way delay: 207.644 ms
Loss rate: 2.91%
-- Flow 1:
Average throughput: 398.93 Mbit/s
95th percentile per-packet one-way delay: 227.350 ms
Loss rate: 3.61%
-- Flow 2:
Average throughput: 227.98 Mbit/s
95th percentile per-packet one-way delay: 144.960 ms
Loss rate: 2.26%
-- Flow 3:
Average throughput: 232.70 Mbit/s
95th percentile per-packet one-way delay: 108.669 ms
Loss rate: 0.48%
```


Run 1: Report of PCC — Data Link

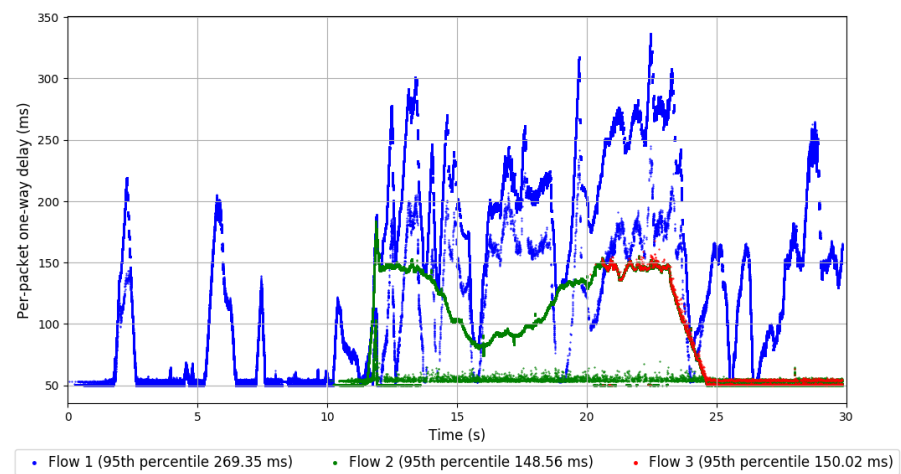
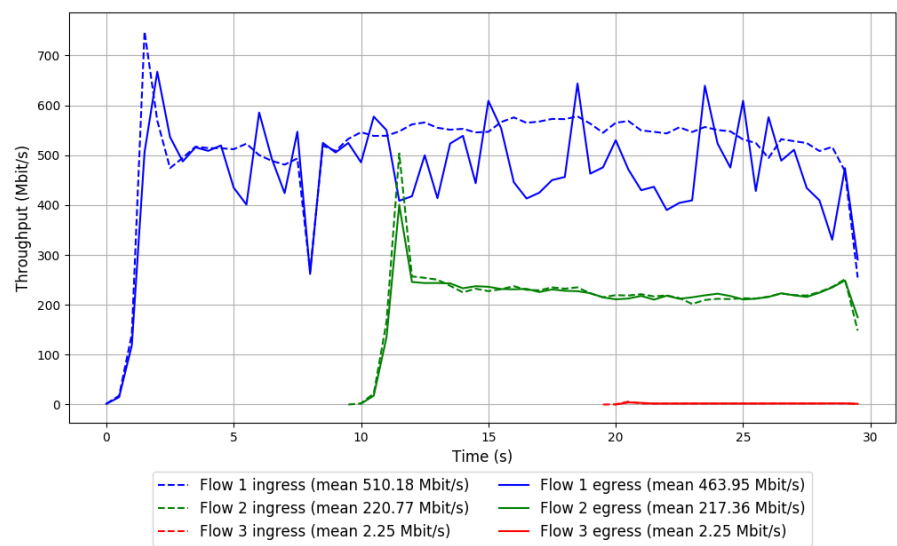


```
Run 2: Statistics of PCC

Start at: 2017-09-19 00:15:59
End at: 2017-09-19 00:16:29

# Below is generated by plot.py at 2017-09-19 03:31:05
# Datalink statistics
-- Total of 3 flows:
Average throughput: 609.35 Mbit/s
95th percentile per-packet one-way delay: 263.419 ms
Loss rate: 7.38%
-- Flow 1:
Average throughput: 463.95 Mbit/s
95th percentile per-packet one-way delay: 269.351 ms
Loss rate: 9.06%
-- Flow 2:
Average throughput: 217.36 Mbit/s
95th percentile per-packet one-way delay: 148.562 ms
Loss rate: 1.56%
-- Flow 3:
Average throughput: 2.25 Mbit/s
95th percentile per-packet one-way delay: 150.018 ms
Loss rate: 1.03%
```

Run 2: Report of PCC — Data Link



Run 3: Statistics of PCC

Start at: 2017-09-19 00:24:52

End at: 2017-09-19 00:25:22

Below is generated by plot.py at 2017-09-19 03:31:20

Datalink statistics

-- Total of 3 flows:

Average throughput: 640.33 Mbit/s

95th percentile per-packet one-way delay: 205.647 ms

Loss rate: 2.59%

-- Flow 1:

Average throughput: 467.10 Mbit/s

95th percentile per-packet one-way delay: 210.967 ms

Loss rate: 3.01%

-- Flow 2:

Average throughput: 233.57 Mbit/s

95th percentile per-packet one-way delay: 147.334 ms

Loss rate: 1.45%

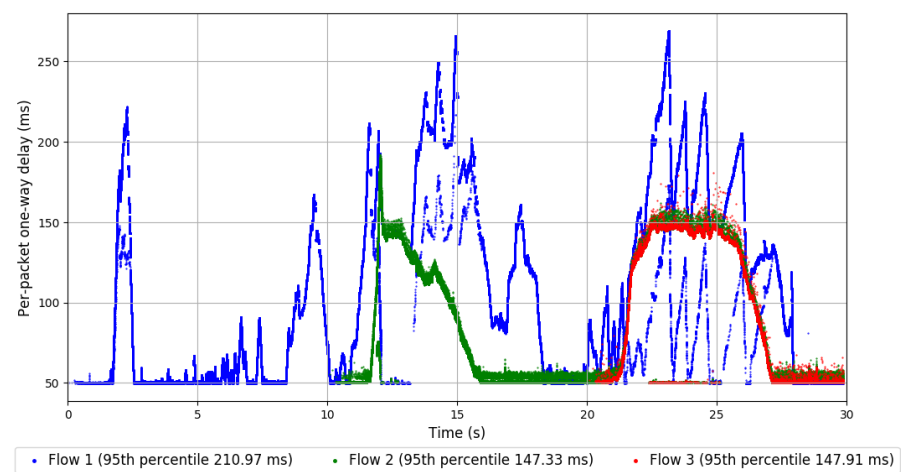
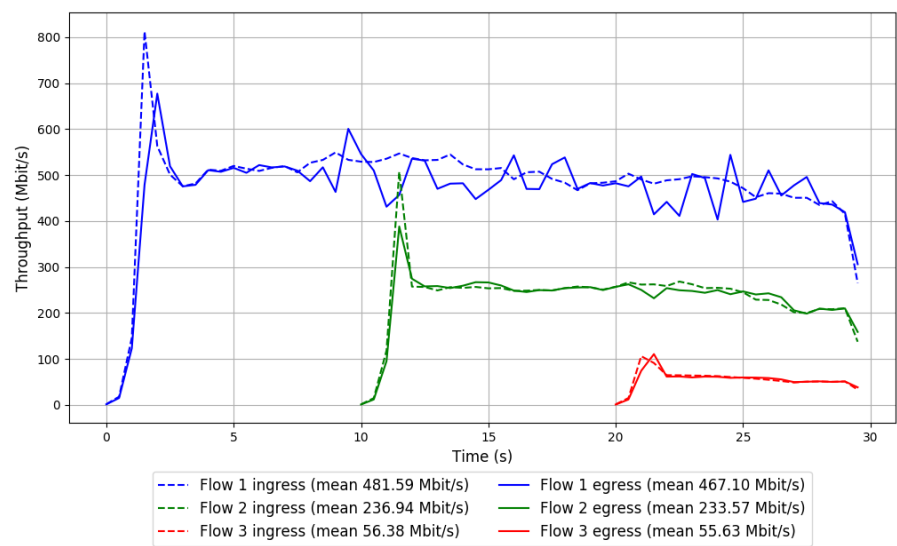
-- Flow 3:

Average throughput: 55.63 Mbit/s

95th percentile per-packet one-way delay: 147.914 ms

Loss rate: 1.34%

Run 3: Report of PCC — Data Link



Run 4: Statistics of PCC

Start at: 2017-09-19 00:33:48

End at: 2017-09-19 00:34:18

Below is generated by plot.py at 2017-09-19 03:31:20

Datalink statistics

-- Total of 3 flows:

Average throughput: 603.94 Mbit/s

95th percentile per-packet one-way delay: 189.259 ms

Loss rate: 13.74%

-- Flow 1:

Average throughput: 319.54 Mbit/s

95th percentile per-packet one-way delay: 193.515 ms

Loss rate: 12.06%

-- Flow 2:

Average throughput: 334.75 Mbit/s

95th percentile per-packet one-way delay: 187.809 ms

Loss rate: 14.80%

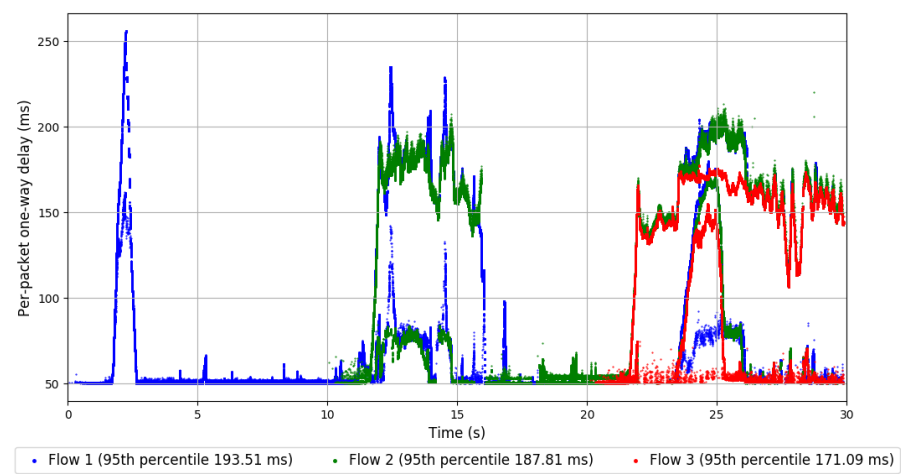
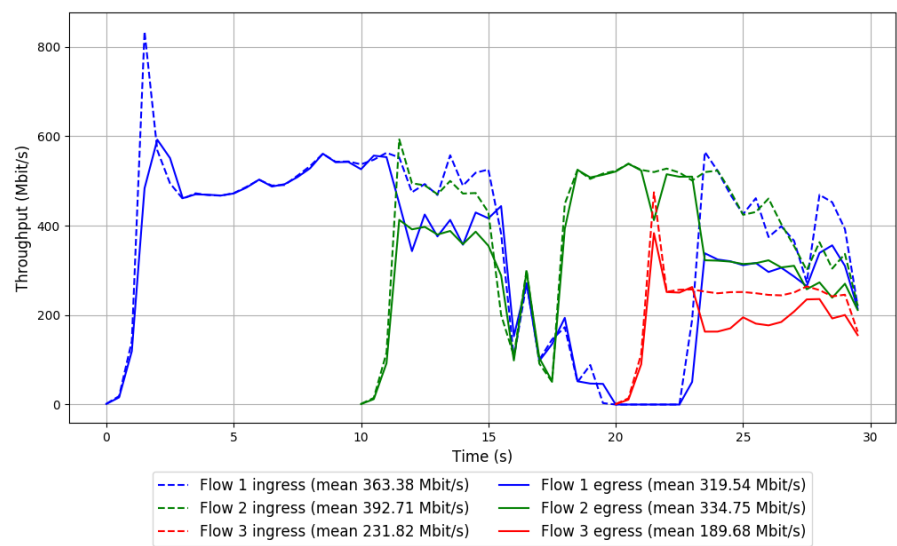
-- Flow 3:

Average throughput: 189.68 Mbit/s

95th percentile per-packet one-way delay: 171.092 ms

Loss rate: 18.13%

Run 4: Report of PCC — Data Link



Run 5: Statistics of PCC

Start at: 2017-09-19 00:42:44

End at: 2017-09-19 00:43:14

Below is generated by plot.py at 2017-09-19 03:31:53

Datalink statistics

-- Total of 3 flows:

Average throughput: 644.16 Mbit/s

95th percentile per-packet one-way delay: 209.478 ms

Loss rate: 3.00%

-- Flow 1:

Average throughput: 482.04 Mbit/s

95th percentile per-packet one-way delay: 244.210 ms

Loss rate: 3.51%

-- Flow 2:

Average throughput: 212.10 Mbit/s

95th percentile per-packet one-way delay: 148.702 ms

Loss rate: 1.52%

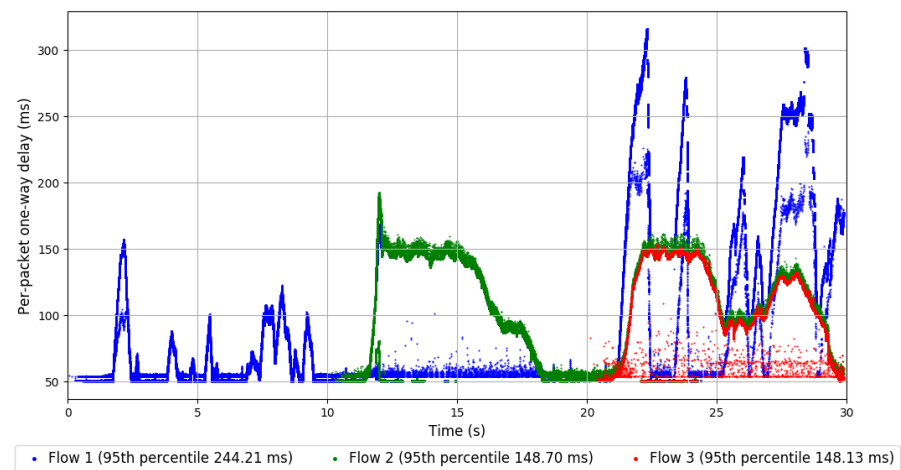
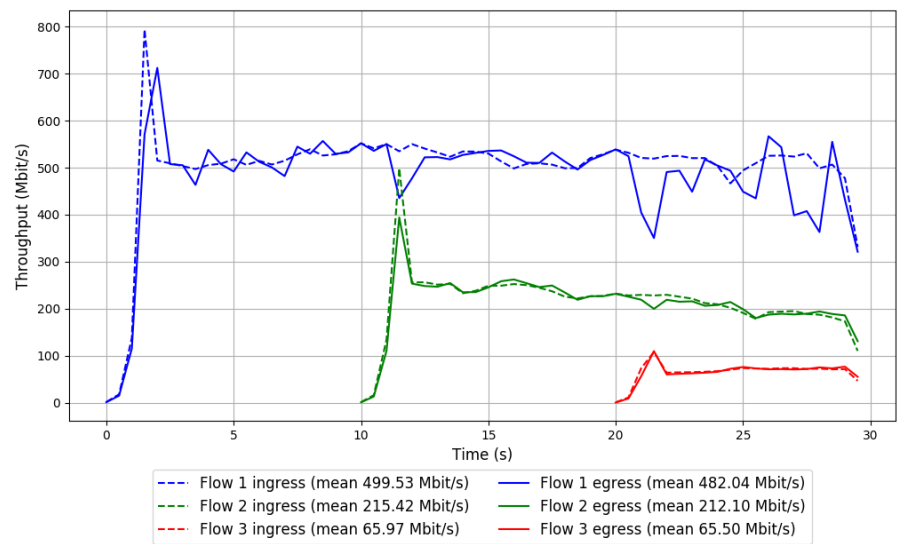
-- Flow 3:

Average throughput: 65.50 Mbit/s

95th percentile per-packet one-way delay: 148.128 ms

Loss rate: 1.03%

Run 5: Report of PCC — Data Link



Run 6: Statistics of PCC

Start at: 2017-09-19 00:52:06

End at: 2017-09-19 00:52:36

Below is generated by plot.py at 2017-09-19 03:31:53

Datalink statistics

-- Total of 3 flows:

Average throughput: 642.57 Mbit/s

95th percentile per-packet one-way delay: 144.466 ms

Loss rate: 1.51%

-- Flow 1:

Average throughput: 460.54 Mbit/s

95th percentile per-packet one-way delay: 148.552 ms

Loss rate: 1.80%

-- Flow 2:

Average throughput: 241.93 Mbit/s

95th percentile per-packet one-way delay: 142.270 ms

Loss rate: 0.85%

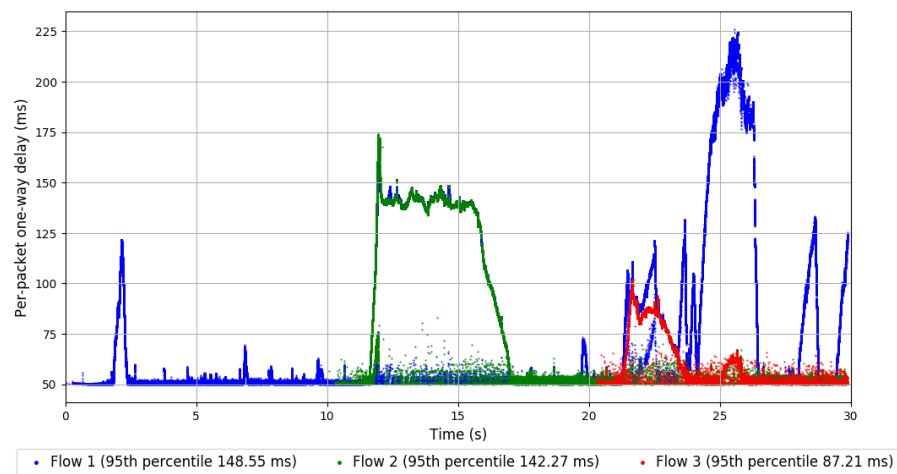
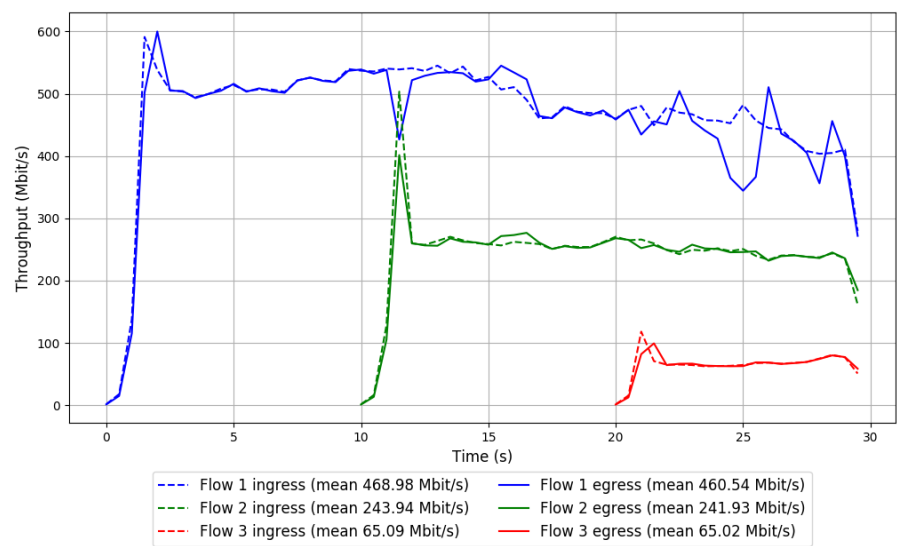
-- Flow 3:

Average throughput: 65.02 Mbit/s

95th percentile per-packet one-way delay: 87.214 ms

Loss rate: 0.15%

Run 6: Report of PCC — Data Link



Run 7: Statistics of PCC

Start at: 2017-09-19 01:01:25

End at: 2017-09-19 01:01:55

Below is generated by plot.py at 2017-09-19 03:32:01

Datalink statistics

-- Total of 3 flows:

Average throughput: 628.41 Mbit/s

95th percentile per-packet one-way delay: 198.037 ms

Loss rate: 2.09%

-- Flow 1:

Average throughput: 420.54 Mbit/s

95th percentile per-packet one-way delay: 226.557 ms

Loss rate: 2.70%

-- Flow 2:

Average throughput: 250.21 Mbit/s

95th percentile per-packet one-way delay: 147.336 ms

Loss rate: 0.98%

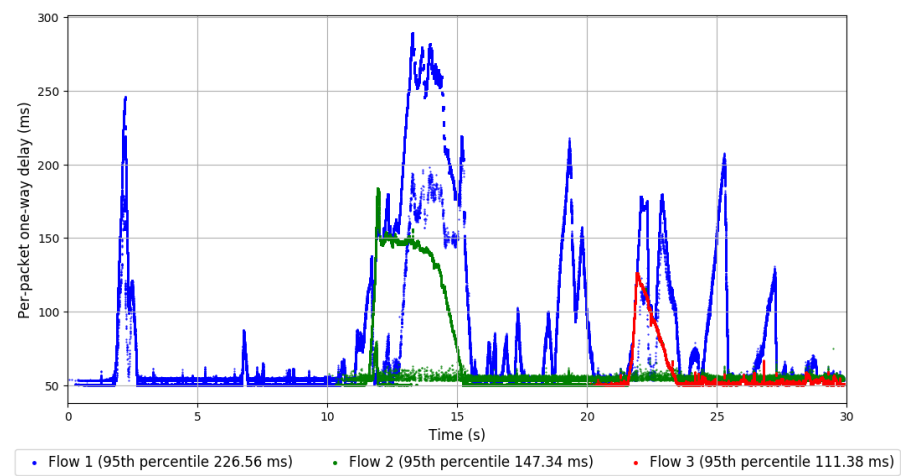
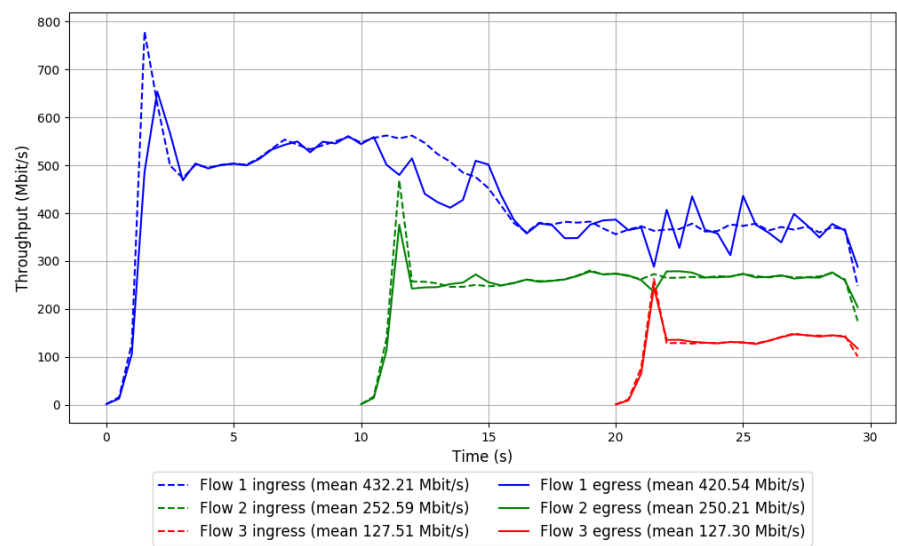
-- Flow 3:

Average throughput: 127.30 Mbit/s

95th percentile per-packet one-way delay: 111.380 ms

Loss rate: 0.17%

Run 7: Report of PCC — Data Link



Run 8: Statistics of PCC

Start at: 2017-09-19 01:10:24

End at: 2017-09-19 01:10:54

Below is generated by plot.py at 2017-09-19 03:34:01

Datalink statistics

-- Total of 3 flows:

Average throughput: 611.61 Mbit/s

95th percentile per-packet one-way delay: 231.980 ms

Loss rate: 3.05%

-- Flow 1:

Average throughput: 446.19 Mbit/s

95th percentile per-packet one-way delay: 243.109 ms

Loss rate: 3.77%

-- Flow 2:

Average throughput: 233.17 Mbit/s

95th percentile per-packet one-way delay: 145.570 ms

Loss rate: 1.10%

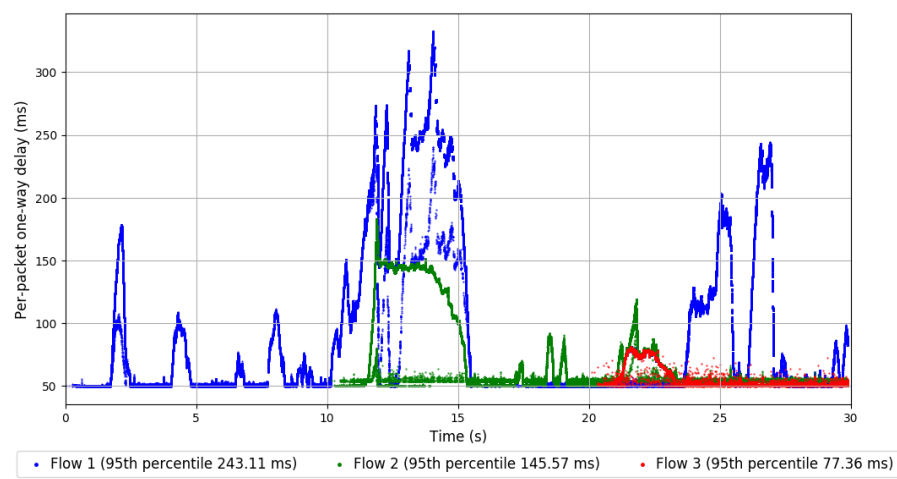
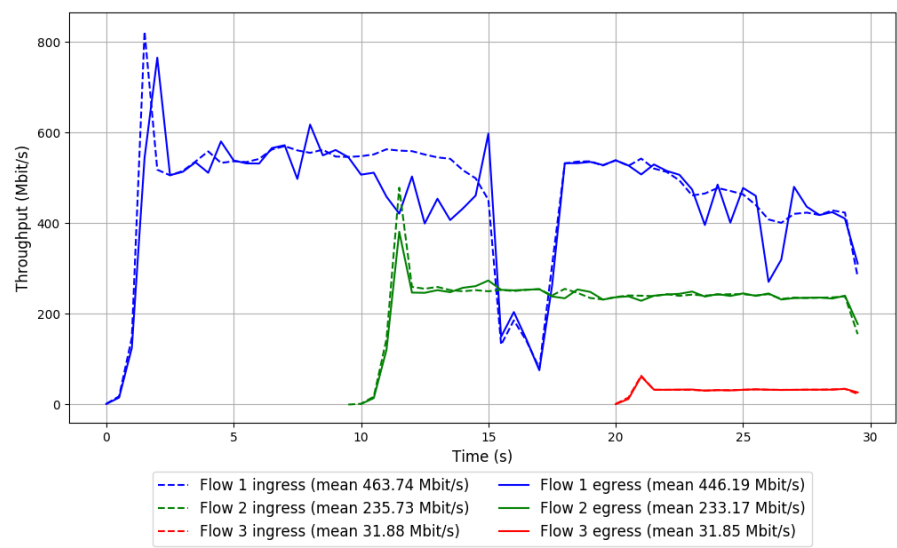
-- Flow 3:

Average throughput: 31.85 Mbit/s

95th percentile per-packet one-way delay: 77.356 ms

Loss rate: 0.18%

Run 8: Report of PCC — Data Link



Run 9: Statistics of PCC

Start at: 2017-09-19 01:19:08

End at: 2017-09-19 01:19:38

Below is generated by plot.py at 2017-09-19 03:42:19

Datalink statistics

-- Total of 3 flows:

Average throughput: 616.89 Mbit/s

95th percentile per-packet one-way delay: 191.749 ms

Loss rate: 3.22%

-- Flow 1:

Average throughput: 433.68 Mbit/s

95th percentile per-packet one-way delay: 215.674 ms

Loss rate: 3.27%

-- Flow 2:

Average throughput: 247.76 Mbit/s

95th percentile per-packet one-way delay: 148.444 ms

Loss rate: 2.95%

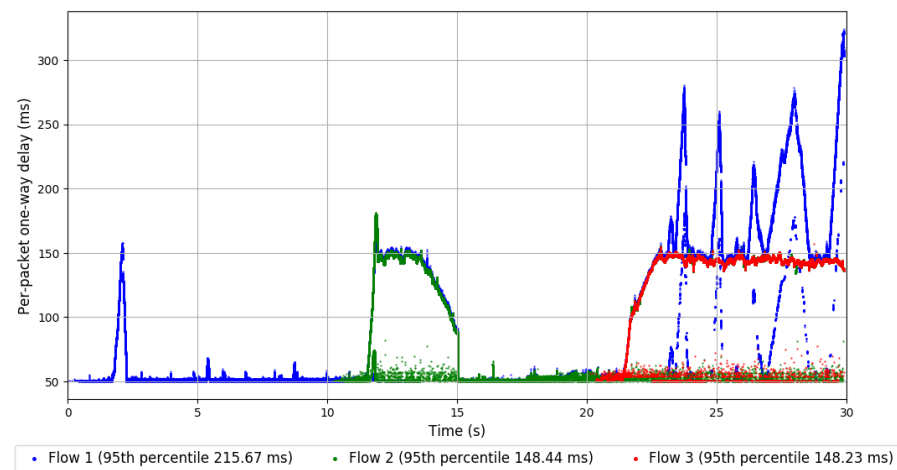
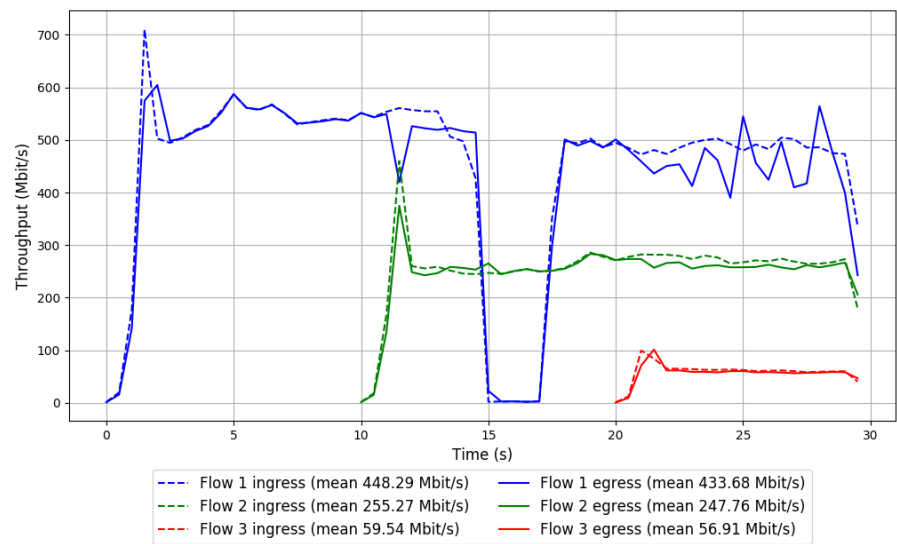
-- Flow 3:

Average throughput: 56.91 Mbit/s

95th percentile per-packet one-way delay: 148.233 ms

Loss rate: 4.51%

Run 9: Report of PCC — Data Link

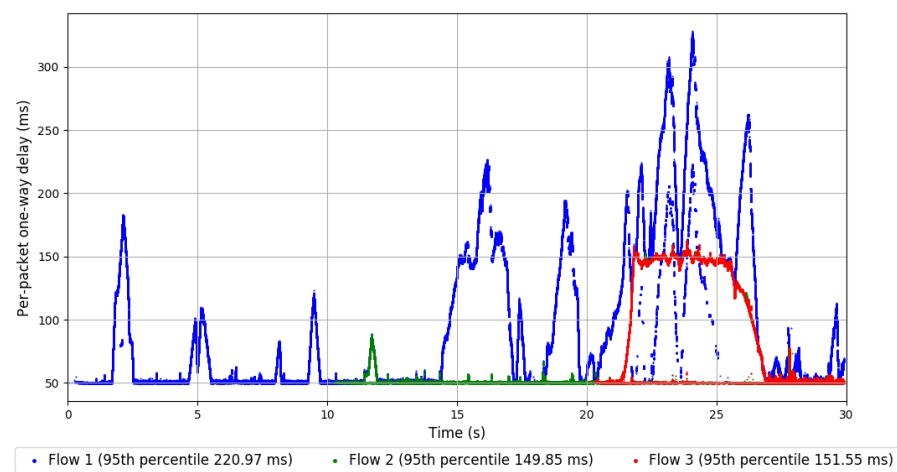
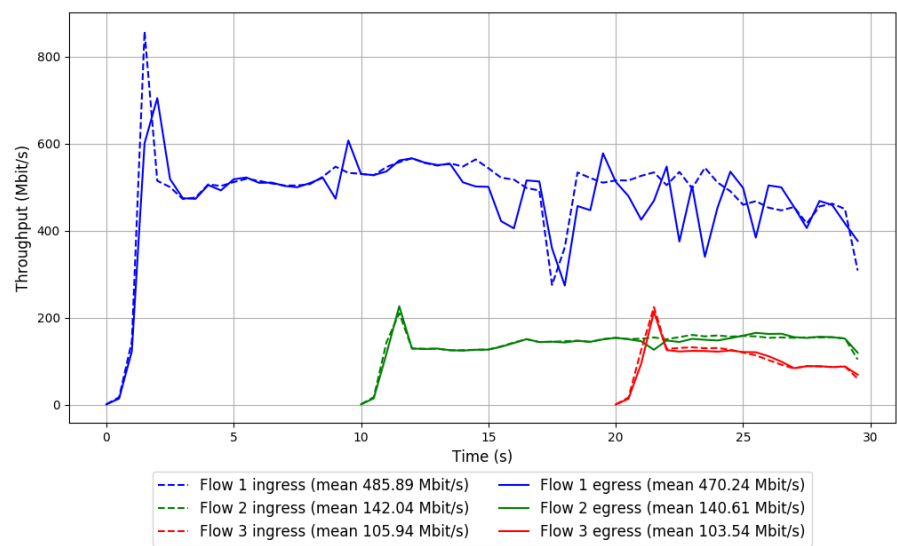


```
Run 10: Statistics of PCC

Start at: 2017-09-19 01:28:26
End at: 2017-09-19 01:28:56

# Below is generated by plot.py at 2017-09-19 03:42:19
# Datalink statistics
-- Total of 3 flows:
Average throughput: 597.71 Mbit/s
95th percentile per-packet one-way delay: 207.565 ms
Loss rate: 2.82%
-- Flow 1:
Average throughput: 470.24 Mbit/s
95th percentile per-packet one-way delay: 220.975 ms
Loss rate: 3.22%
-- Flow 2:
Average throughput: 140.61 Mbit/s
95th percentile per-packet one-way delay: 149.853 ms
Loss rate: 1.01%
-- Flow 3:
Average throughput: 103.54 Mbit/s
95th percentile per-packet one-way delay: 151.548 ms
Loss rate: 2.27%
```

Run 10: Report of PCC — Data Link

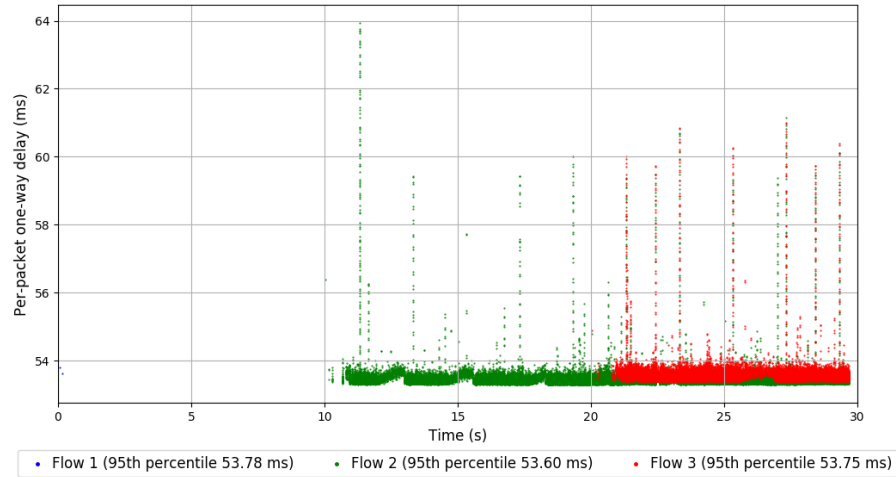
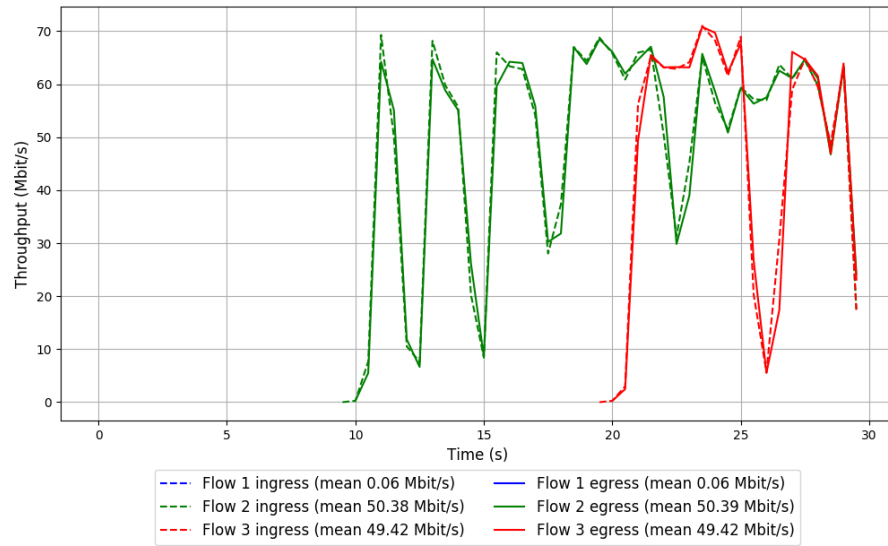


```
Run 1: Statistics of QUIC Cubic

Start at: 2017-09-19 00:10:29
End at: 2017-09-19 00:10:59

# Below is generated by plot.py at 2017-09-19 03:42:19
# Datalink statistics
-- Total of 3 flows:
Average throughput: 49.51 Mbit/s
95th percentile per-packet one-way delay: 53.673 ms
Loss rate: 0.01%
-- Flow 1:
Average throughput: 0.06 Mbit/s
95th percentile per-packet one-way delay: 53.783 ms
Loss rate: 0.00%
-- Flow 2:
Average throughput: 50.39 Mbit/s
95th percentile per-packet one-way delay: 53.599 ms
Loss rate: 0.01%
-- Flow 3:
Average throughput: 49.42 Mbit/s
95th percentile per-packet one-way delay: 53.749 ms
Loss rate: 0.02%
```

Run 1: Report of QUIC Cubic — Data Link



Run 2: Statistics of QUIC Cubic

Start at: 2017-09-19 00:19:42

End at: 2017-09-19 00:20:12

Below is generated by plot.py at 2017-09-19 03:42:19

Datalink statistics

-- Total of 3 flows:

Average throughput: 47.72 Mbit/s

95th percentile per-packet one-way delay: 52.962 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 0.06 Mbit/s

95th percentile per-packet one-way delay: 50.039 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 51.82 Mbit/s

95th percentile per-packet one-way delay: 52.999 ms

Loss rate: 0.00%

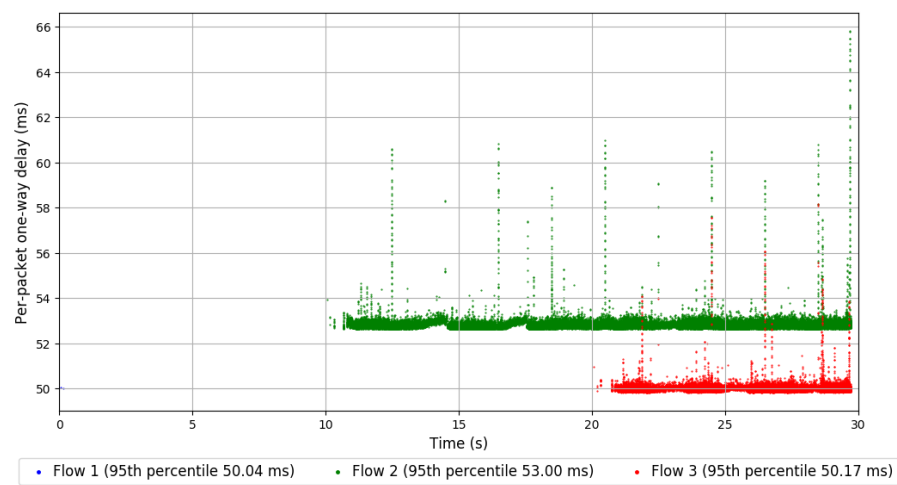
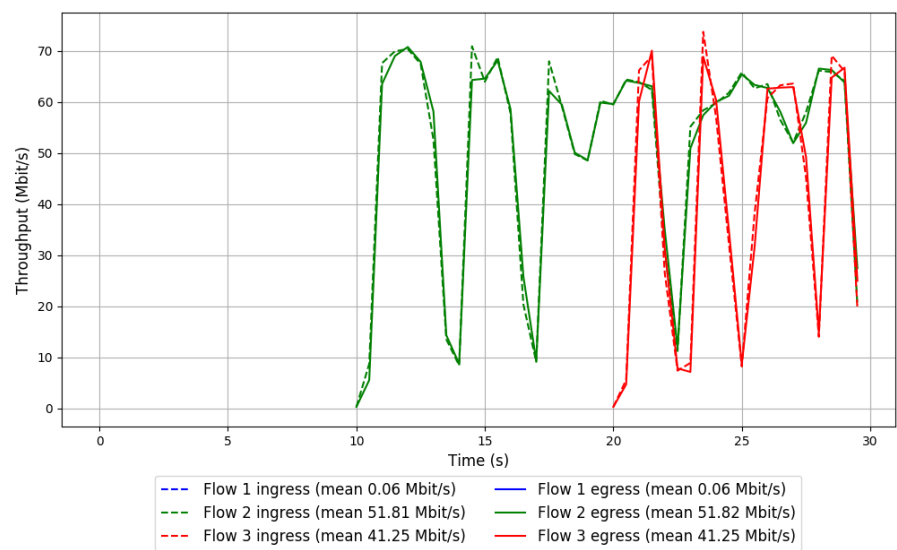
-- Flow 3:

Average throughput: 41.25 Mbit/s

95th percentile per-packet one-way delay: 50.174 ms

Loss rate: 0.00%

Run 2: Report of QUIC Cubic — Data Link



Run 3: Statistics of QUIC Cubic

Start at: 2017-09-19 00:28:36

End at: 2017-09-19 00:29:06

Below is generated by plot.py at 2017-09-19 03:42:19

Datalink statistics

-- Total of 3 flows:

Average throughput: 57.08 Mbit/s

95th percentile per-packet one-way delay: 53.715 ms

Loss rate: 0.01%

-- Flow 1:

Average throughput: 0.06 Mbit/s

95th percentile per-packet one-way delay: 53.079 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 57.68 Mbit/s

95th percentile per-packet one-way delay: 49.968 ms

Loss rate: 0.00%

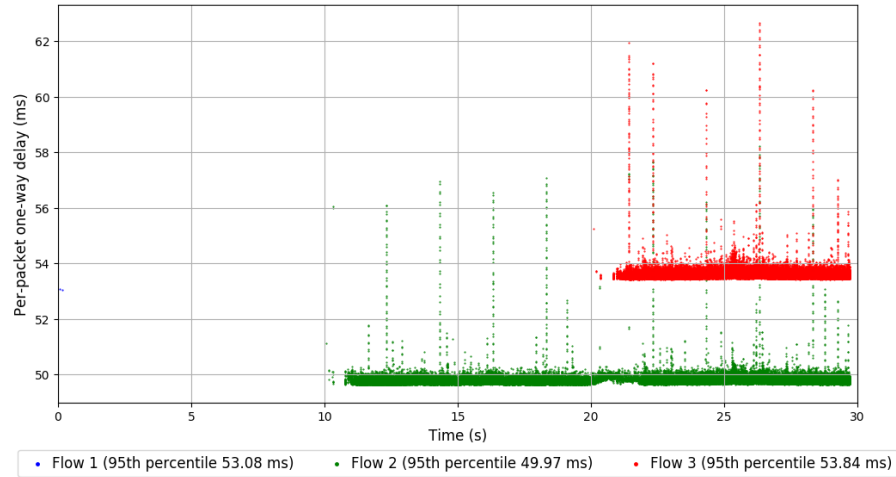
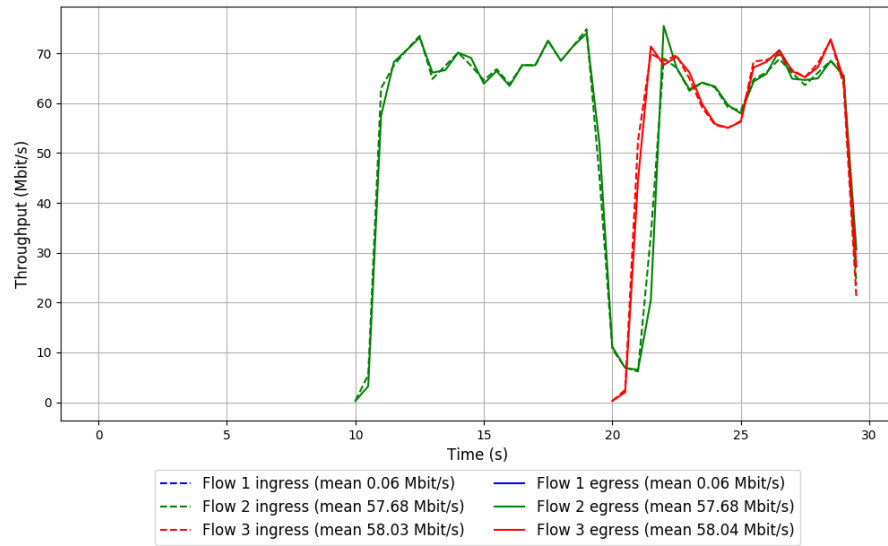
-- Flow 3:

Average throughput: 58.04 Mbit/s

95th percentile per-packet one-way delay: 53.845 ms

Loss rate: 0.02%

Run 3: Report of QUIC Cubic — Data Link



Run 4: Statistics of QUIC Cubic

Start at: 2017-09-19 00:37:29

End at: 2017-09-19 00:38:00

Below is generated by plot.py at 2017-09-19 03:42:19

Datalink statistics

-- Total of 3 flows:

Average throughput: 99.60 Mbit/s

95th percentile per-packet one-way delay: 53.407 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 51.68 Mbit/s

95th percentile per-packet one-way delay: 50.281 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 49.03 Mbit/s

95th percentile per-packet one-way delay: 53.543 ms

Loss rate: 0.00%

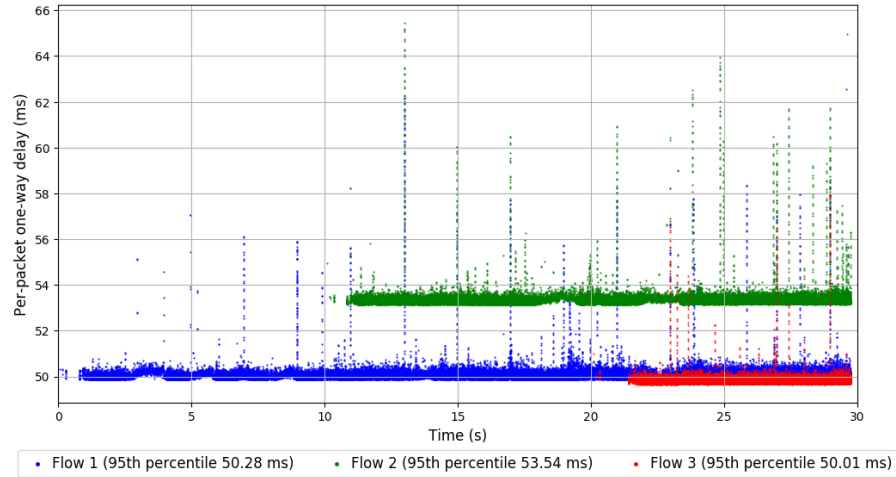
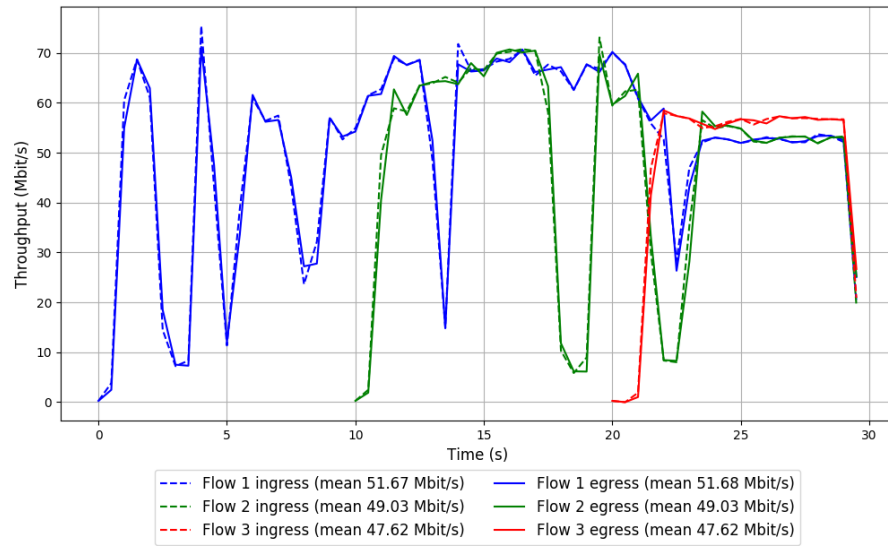
-- Flow 3:

Average throughput: 47.62 Mbit/s

95th percentile per-packet one-way delay: 50.005 ms

Loss rate: 0.00%

Run 4: Report of QUIC Cubic — Data Link



Run 5: Statistics of QUIC Cubic

Start at: 2017-09-19 00:46:31

End at: 2017-09-19 00:47:01

Below is generated by plot.py at 2017-09-19 03:42:19

Datalink statistics

-- Total of 3 flows:

Average throughput: 49.29 Mbit/s

95th percentile per-packet one-way delay: 53.509 ms

Loss rate: 0.01%

-- Flow 1:

Average throughput: 0.06 Mbit/s

95th percentile per-packet one-way delay: 53.640 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 47.16 Mbit/s

95th percentile per-packet one-way delay: 53.554 ms

Loss rate: 0.01%

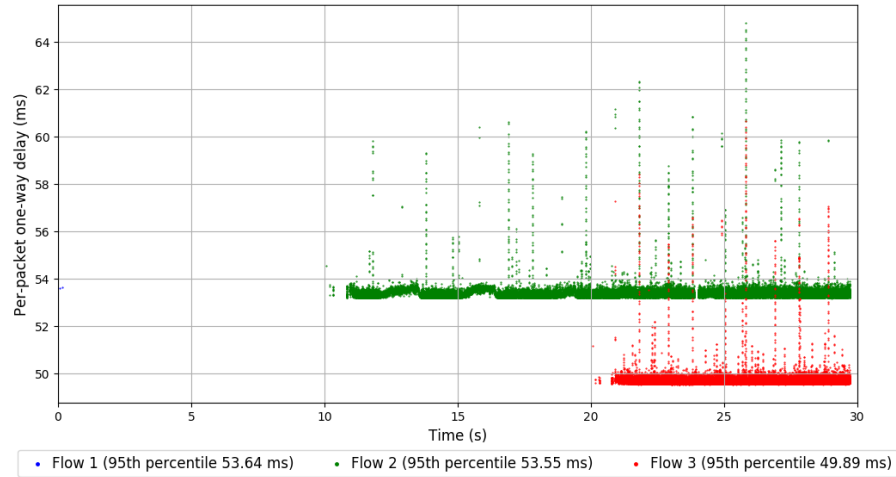
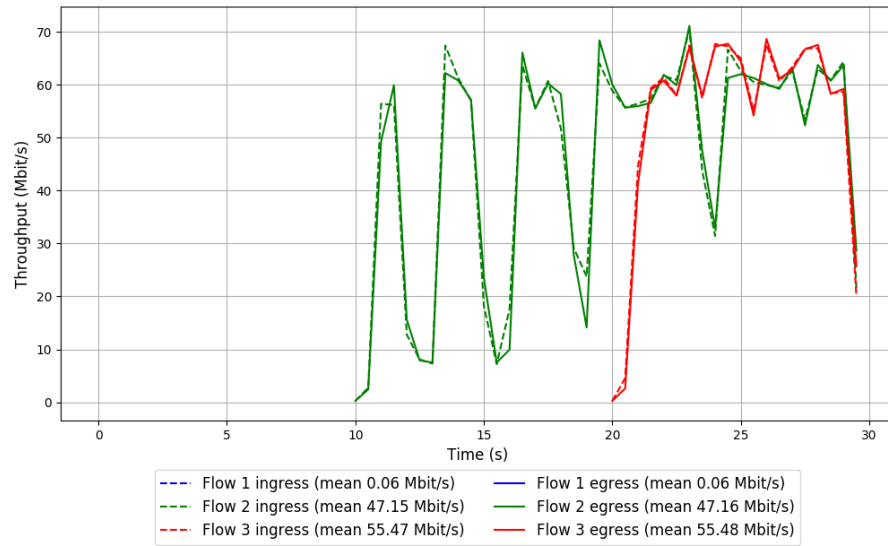
-- Flow 3:

Average throughput: 55.48 Mbit/s

95th percentile per-packet one-way delay: 49.886 ms

Loss rate: 0.00%

Run 5: Report of QUIC Cubic — Data Link



Run 6: Statistics of QUIC Cubic

Start at: 2017-09-19 00:55:50

End at: 2017-09-19 00:56:20

Below is generated by plot.py at 2017-09-19 03:42:19

Datalink statistics

-- Total of 3 flows:

Average throughput: 93.75 Mbit/s

95th percentile per-packet one-way delay: 49.985 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 50.48 Mbit/s

95th percentile per-packet one-way delay: 50.011 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 46.90 Mbit/s

95th percentile per-packet one-way delay: 49.909 ms

Loss rate: 0.00%

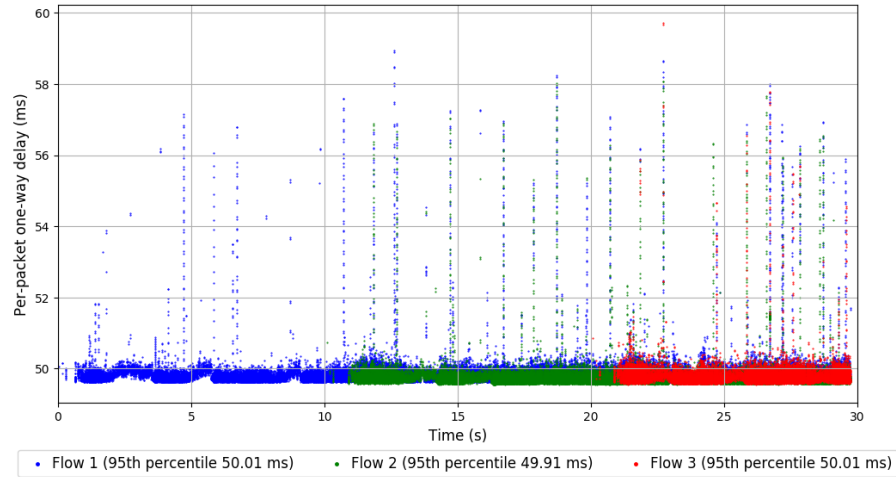
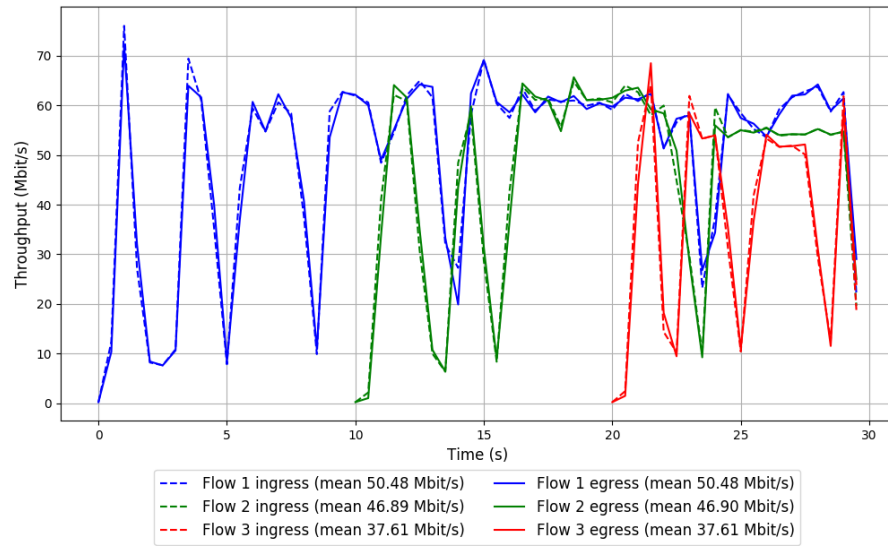
-- Flow 3:

Average throughput: 37.61 Mbit/s

95th percentile per-packet one-way delay: 50.010 ms

Loss rate: 0.00%

Run 6: Report of QUIC Cubic — Data Link



Run 7: Statistics of QUIC Cubic

Start at: 2017-09-19 01:05:08

End at: 2017-09-19 01:05:38

Below is generated by plot.py at 2017-09-19 03:42:19

Datalink statistics

-- Total of 3 flows:

Average throughput: 98.76 Mbit/s

95th percentile per-packet one-way delay: 53.542 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 53.96 Mbit/s

95th percentile per-packet one-way delay: 49.967 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 48.88 Mbit/s

95th percentile per-packet one-way delay: 53.701 ms

Loss rate: 0.00%

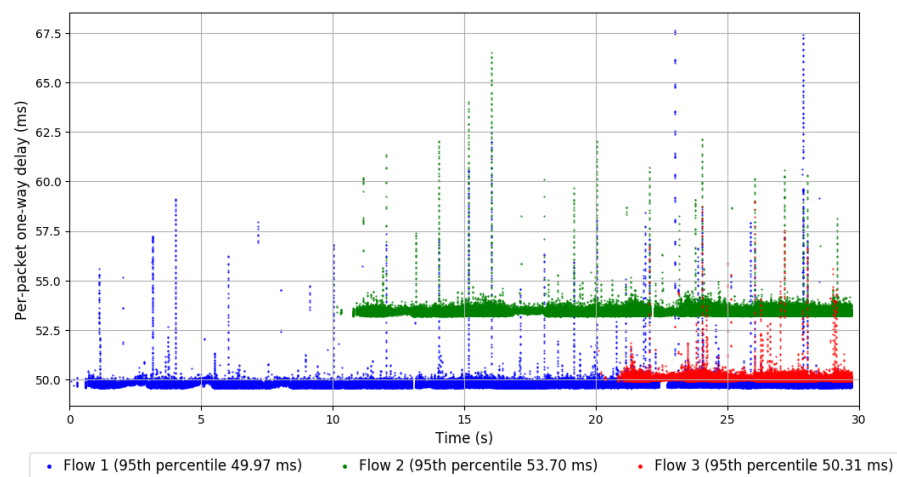
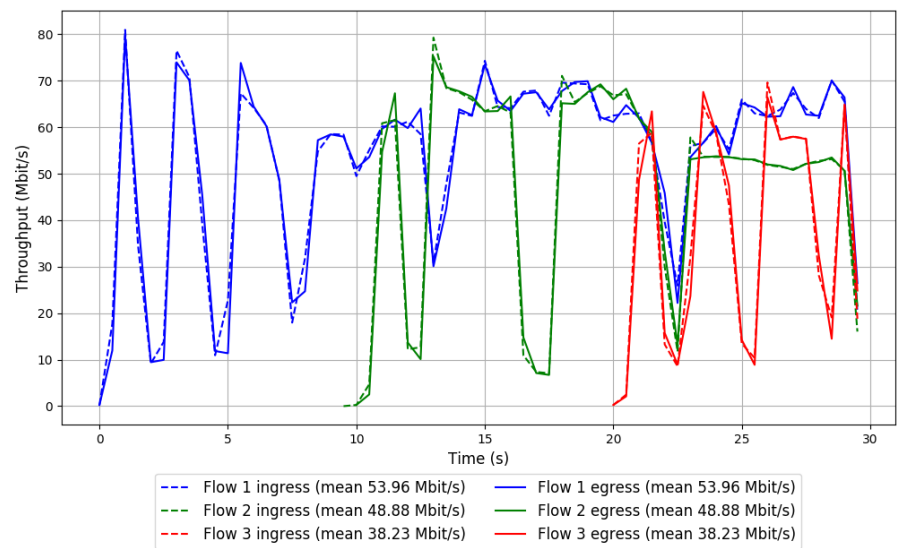
-- Flow 3:

Average throughput: 38.23 Mbit/s

95th percentile per-packet one-way delay: 50.315 ms

Loss rate: 0.00%

Run 7: Report of QUIC Cubic — Data Link



Run 8: Statistics of QUIC Cubic

Start at: 2017-09-19 01:14:11

End at: 2017-09-19 01:14:41

Below is generated by plot.py at 2017-09-19 03:42:19

Datalink statistics

-- Total of 3 flows:

Average throughput: 101.54 Mbit/s

95th percentile per-packet one-way delay: 53.776 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 54.47 Mbit/s

95th percentile per-packet one-way delay: 53.850 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 55.87 Mbit/s

95th percentile per-packet one-way delay: 49.965 ms

Loss rate: 0.00%

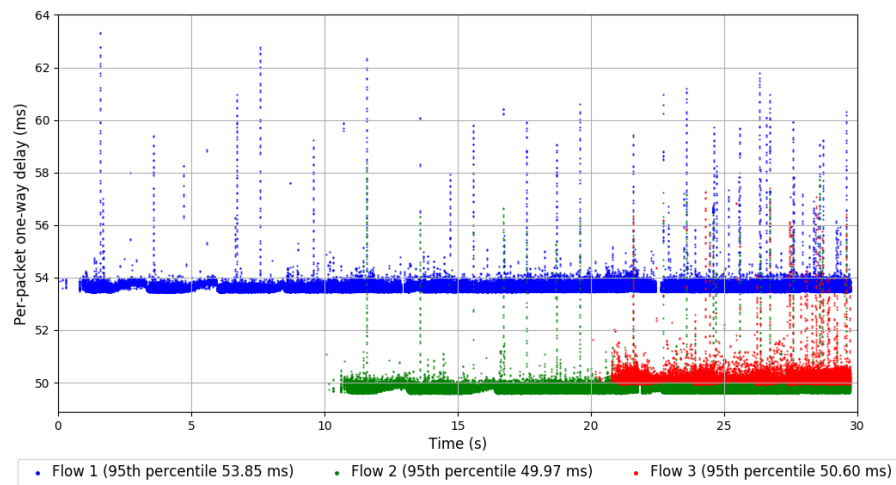
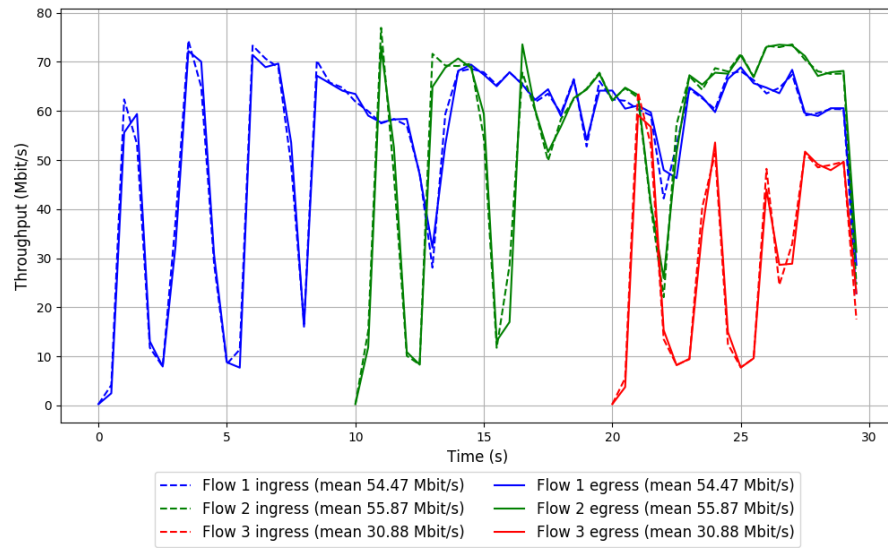
-- Flow 3:

Average throughput: 30.88 Mbit/s

95th percentile per-packet one-way delay: 50.597 ms

Loss rate: 0.00%

Run 8: Report of QUIC Cubic — Data Link



Run 9: Statistics of QUIC Cubic

Start at: 2017-09-19 01:22:52

End at: 2017-09-19 01:23:22

Below is generated by plot.py at 2017-09-19 03:42:19

Datalink statistics

-- Total of 3 flows:

Average throughput: 105.69 Mbit/s

95th percentile per-packet one-way delay: 53.546 ms

Loss rate: 0.01%

-- Flow 1:

Average throughput: 52.93 Mbit/s

95th percentile per-packet one-way delay: 50.042 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 59.16 Mbit/s

95th percentile per-packet one-way delay: 53.637 ms

Loss rate: 0.01%

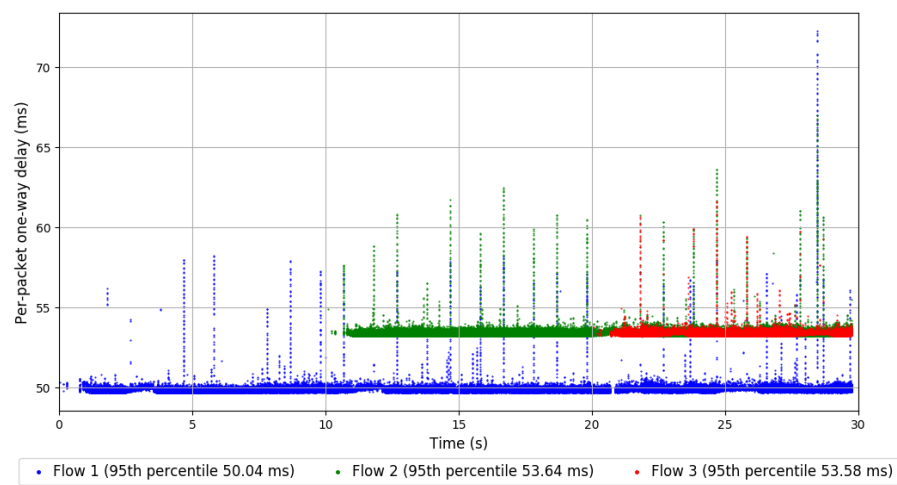
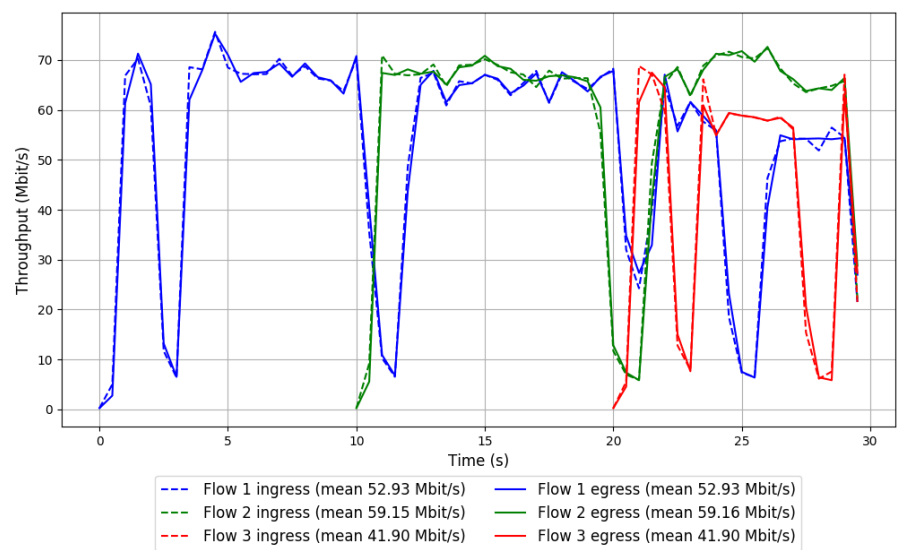
-- Flow 3:

Average throughput: 41.90 Mbit/s

95th percentile per-packet one-way delay: 53.577 ms

Loss rate: 0.02%

Run 9: Report of QUIC Cubic — Data Link

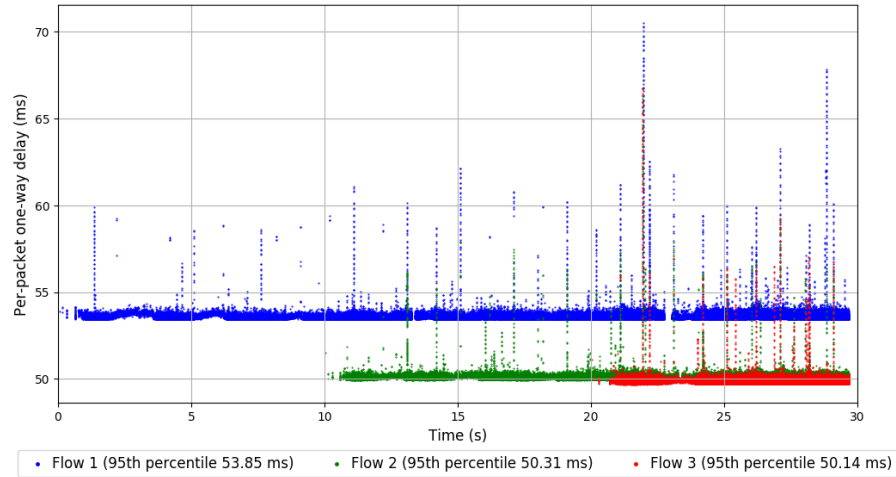
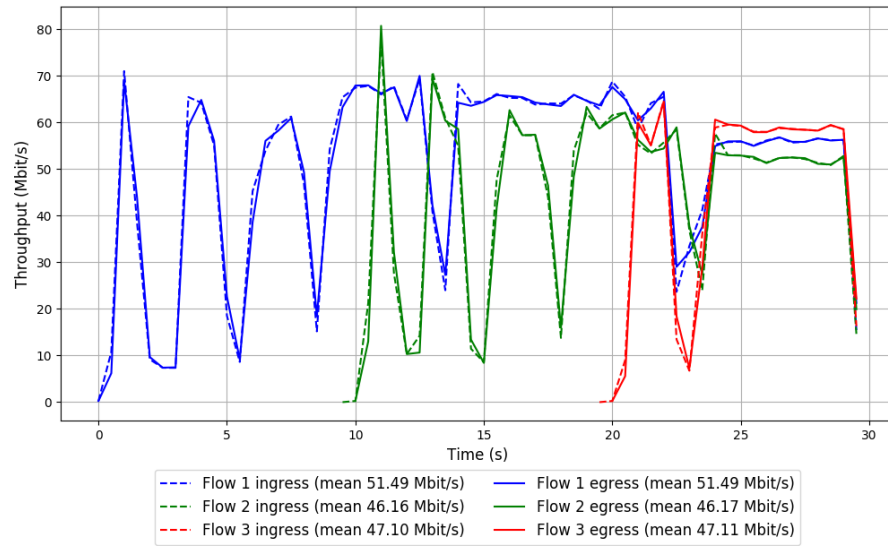


```
Run 10: Statistics of QUIC Cubic

Start at: 2017-09-19 01:32:05
End at: 2017-09-19 01:32:35

# Below is generated by plot.py at 2017-09-19 03:42:19
# Datalink statistics
-- Total of 3 flows:
Average throughput: 97.45 Mbit/s
95th percentile per-packet one-way delay: 53.772 ms
Loss rate: 0.00%
-- Flow 1:
Average throughput: 51.49 Mbit/s
95th percentile per-packet one-way delay: 53.854 ms
Loss rate: 0.01%
-- Flow 2:
Average throughput: 46.17 Mbit/s
95th percentile per-packet one-way delay: 50.307 ms
Loss rate: 0.00%
-- Flow 3:
Average throughput: 47.11 Mbit/s
95th percentile per-packet one-way delay: 50.136 ms
Loss rate: 0.00%
```

Run 10: Report of QUIC Cubic — Data Link



Run 1: Statistics of Sprout

Start at: 2017-09-19 00:05:06

End at: 2017-09-19 00:05:36

Below is generated by plot.py at 2017-09-19 03:42:19

Datalink statistics

-- Total of 3 flows:

Average throughput: 15.81 Mbit/s

95th percentile per-packet one-way delay: 51.148 ms

Loss rate: 0.29%

-- Flow 1:

Average throughput: 7.82 Mbit/s

95th percentile per-packet one-way delay: 51.161 ms

Loss rate: 0.31%

-- Flow 2:

Average throughput: 7.69 Mbit/s

95th percentile per-packet one-way delay: 51.118 ms

Loss rate: 0.23%

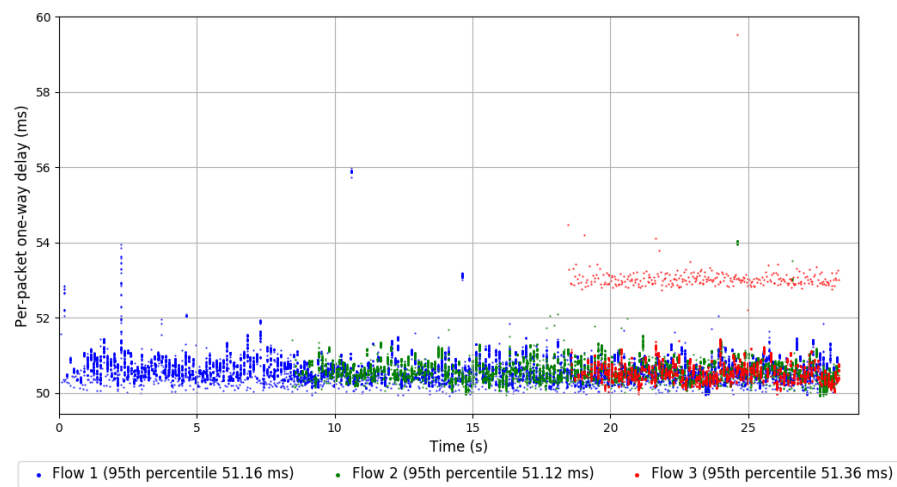
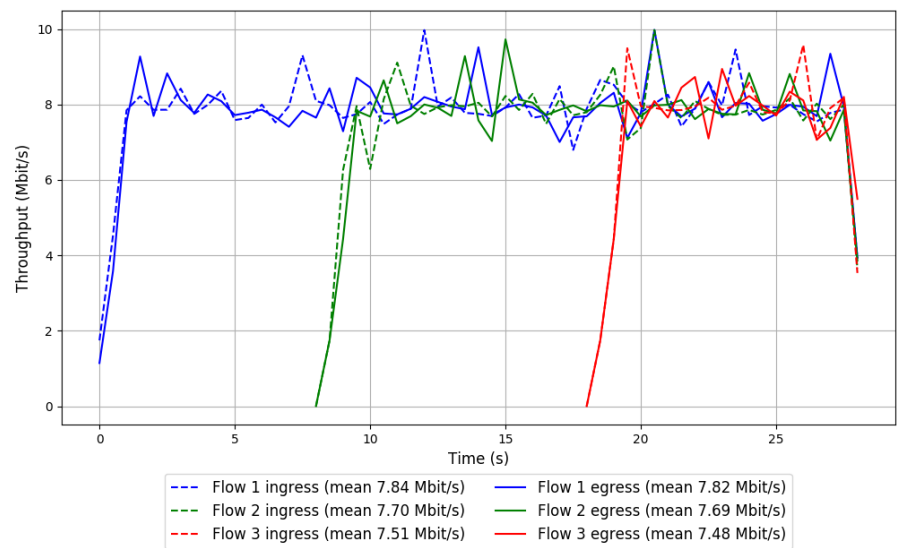
-- Flow 3:

Average throughput: 7.48 Mbit/s

95th percentile per-packet one-way delay: 51.360 ms

Loss rate: 0.39%

Run 1: Report of Sprout — Data Link



Run 2: Statistics of Sprout

Start at: 2017-09-19 00:14:21

End at: 2017-09-19 00:14:51

Below is generated by plot.py at 2017-09-19 03:42:19

Datalink statistics

-- Total of 3 flows:

Average throughput: 15.38 Mbit/s

95th percentile per-packet one-way delay: 51.503 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 7.82 Mbit/s

95th percentile per-packet one-way delay: 51.773 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 7.70 Mbit/s

95th percentile per-packet one-way delay: 51.504 ms

Loss rate: 0.00%

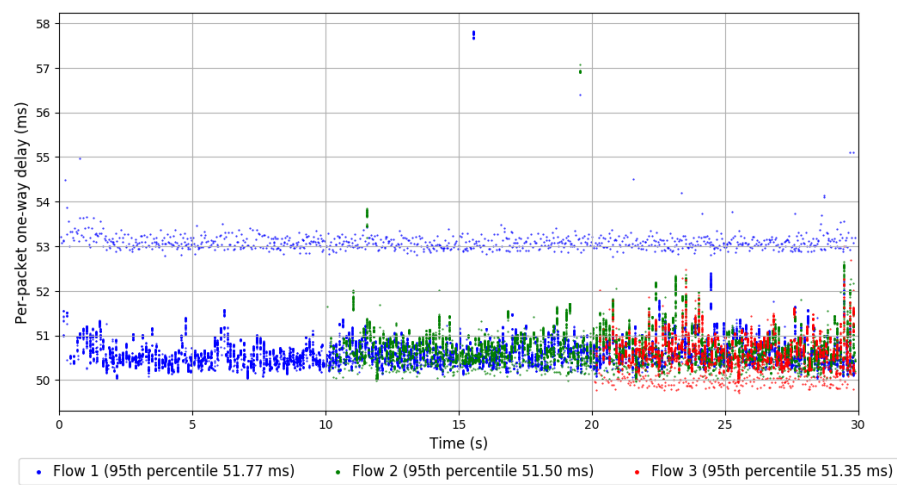
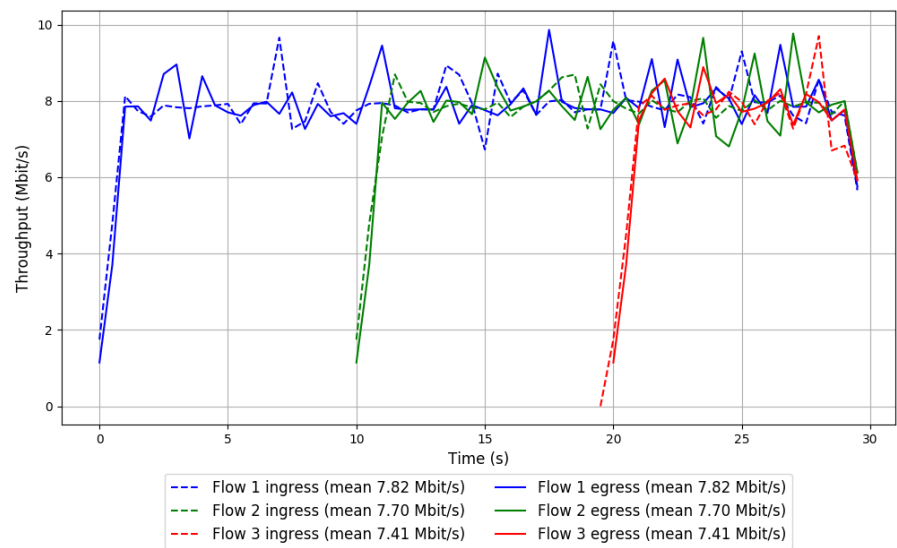
-- Flow 3:

Average throughput: 7.41 Mbit/s

95th percentile per-packet one-way delay: 51.352 ms

Loss rate: 0.00%

Run 2: Report of Sprout — Data Link



Run 3: Statistics of Sprout

Start at: 2017-09-19 00:23:15

End at: 2017-09-19 00:23:45

Below is generated by plot.py at 2017-09-19 03:42:19

Datalink statistics

-- Total of 3 flows:

Average throughput: 15.37 Mbit/s

95th percentile per-packet one-way delay: 51.520 ms

Loss rate: 0.07%

-- Flow 1:

Average throughput: 7.74 Mbit/s

95th percentile per-packet one-way delay: 52.921 ms

Loss rate: 0.14%

-- Flow 2:

Average throughput: 7.76 Mbit/s

95th percentile per-packet one-way delay: 51.472 ms

Loss rate: 0.00%

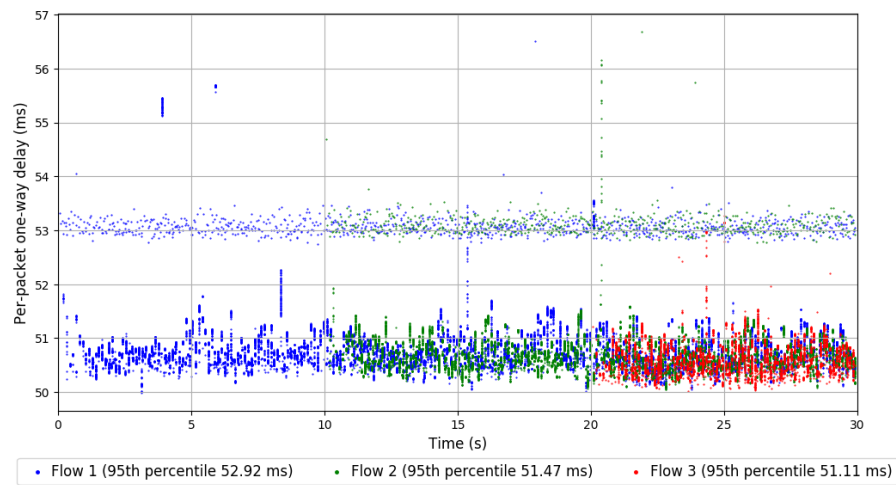
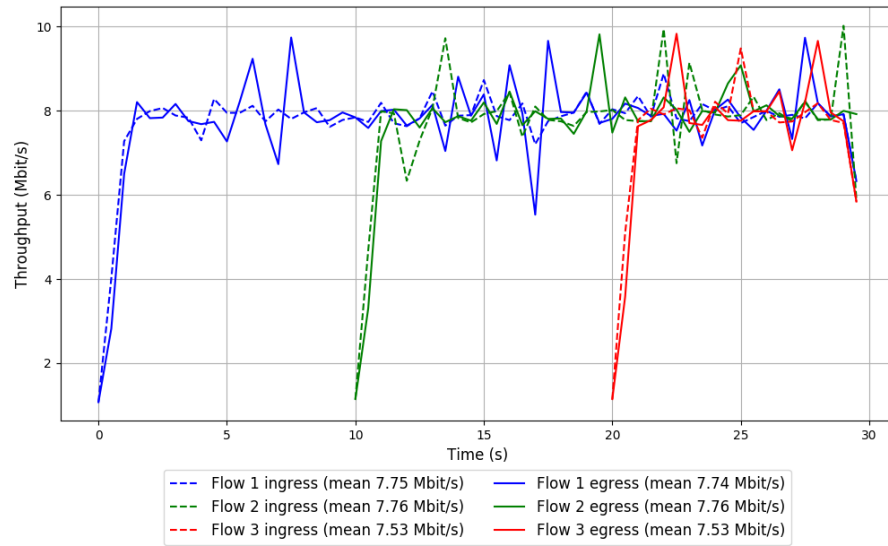
-- Flow 3:

Average throughput: 7.53 Mbit/s

95th percentile per-packet one-way delay: 51.106 ms

Loss rate: 0.00%

Run 3: Report of Sprout — Data Link



Run 4: Statistics of Sprout

Start at: 2017-09-19 00:32:11

End at: 2017-09-19 00:32:41

Below is generated by plot.py at 2017-09-19 03:42:19

Datalink statistics

-- Total of 3 flows:

Average throughput: 15.42 Mbit/s

95th percentile per-packet one-way delay: 51.922 ms

Loss rate: 0.29%

-- Flow 1:

Average throughput: 7.80 Mbit/s

95th percentile per-packet one-way delay: 52.142 ms

Loss rate: 0.35%

-- Flow 2:

Average throughput: 7.71 Mbit/s

95th percentile per-packet one-way delay: 51.868 ms

Loss rate: 0.35%

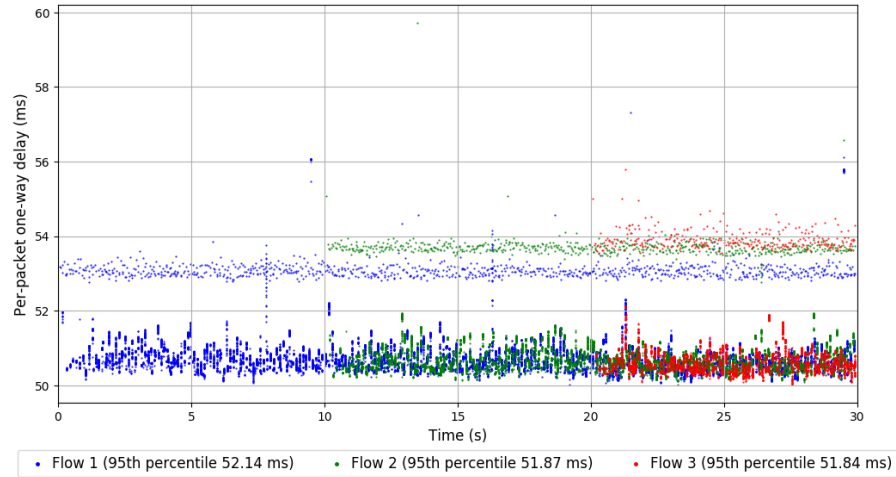
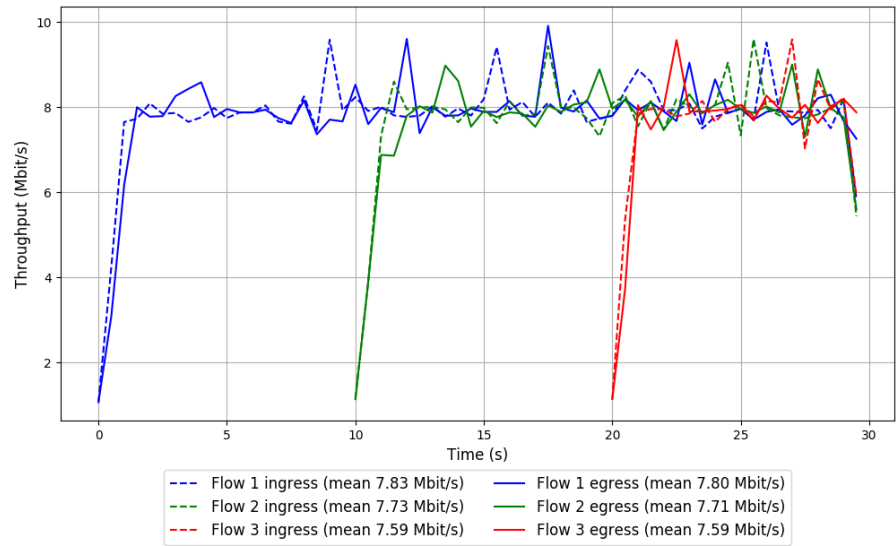
-- Flow 3:

Average throughput: 7.59 Mbit/s

95th percentile per-packet one-way delay: 51.845 ms

Loss rate: 0.00%

Run 4: Report of Sprout — Data Link



Run 5: Statistics of Sprout

Start at: 2017-09-19 00:41:06

End at: 2017-09-19 00:41:36

Below is generated by plot.py at 2017-09-19 03:42:19

Datalink statistics

-- Total of 3 flows:

Average throughput: 15.37 Mbit/s

95th percentile per-packet one-way delay: 51.262 ms

Loss rate: 0.22%

-- Flow 1:

Average throughput: 7.84 Mbit/s

95th percentile per-packet one-way delay: 51.125 ms

Loss rate: 0.10%

-- Flow 2:

Average throughput: 7.75 Mbit/s

95th percentile per-packet one-way delay: 51.690 ms

Loss rate: 0.18%

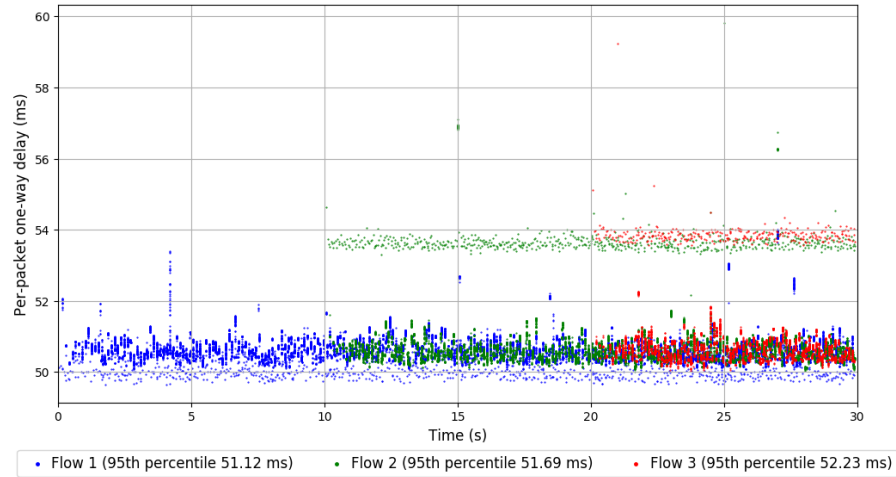
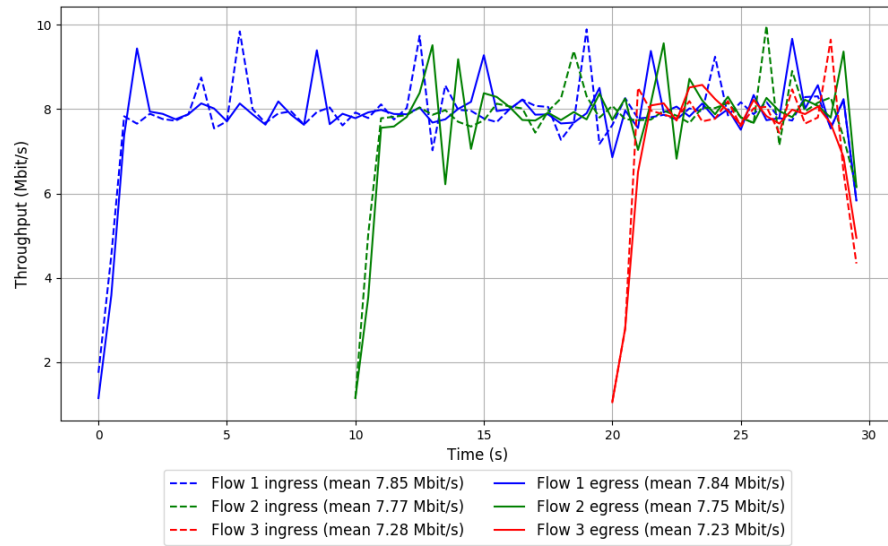
-- Flow 3:

Average throughput: 7.23 Mbit/s

95th percentile per-packet one-way delay: 52.229 ms

Loss rate: 0.71%

Run 5: Report of Sprout — Data Link



Run 6: Statistics of Sprout

Start at: 2017-09-19 00:50:29

End at: 2017-09-19 00:50:59

Below is generated by plot.py at 2017-09-19 03:42:19

Datalink statistics

-- Total of 3 flows:

Average throughput: 15.34 Mbit/s

95th percentile per-packet one-way delay: 51.563 ms

Loss rate: 0.26%

-- Flow 1:

Average throughput: 7.83 Mbit/s

95th percentile per-packet one-way delay: 51.301 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 7.71 Mbit/s

95th percentile per-packet one-way delay: 52.052 ms

Loss rate: 0.78%

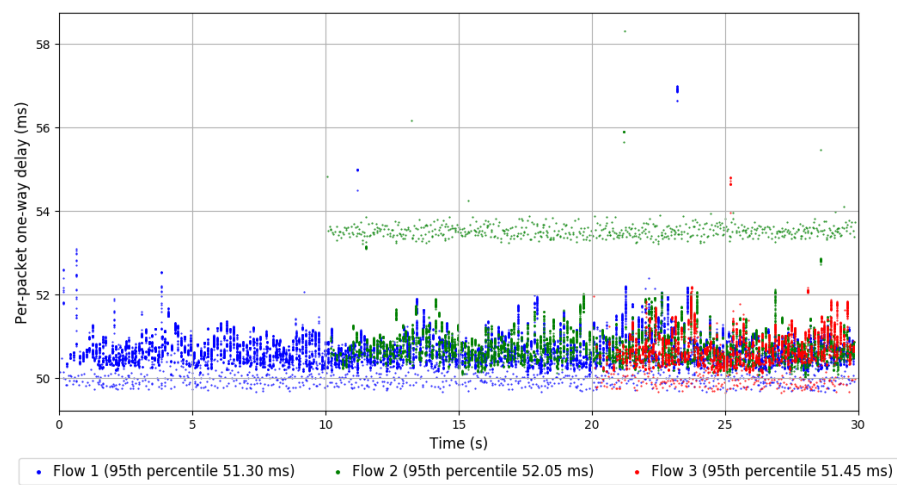
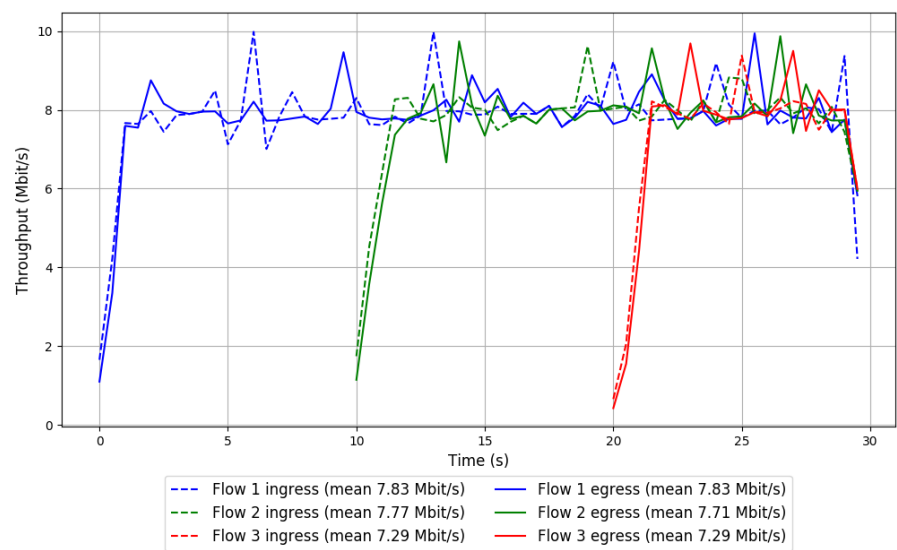
-- Flow 3:

Average throughput: 7.29 Mbit/s

95th percentile per-packet one-way delay: 51.452 ms

Loss rate: 0.00%

Run 6: Report of Sprout — Data Link



Run 7: Statistics of Sprout

Start at: 2017-09-19 00:59:48

End at: 2017-09-19 01:00:18

Below is generated by plot.py at 2017-09-19 03:42:19

Datalink statistics

-- Total of 3 flows:

Average throughput: 15.44 Mbit/s

95th percentile per-packet one-way delay: 51.594 ms

Loss rate: 0.22%

-- Flow 1:

Average throughput: 7.86 Mbit/s

95th percentile per-packet one-way delay: 51.584 ms

Loss rate: 0.13%

-- Flow 2:

Average throughput: 7.72 Mbit/s

95th percentile per-packet one-way delay: 51.563 ms

Loss rate: 0.46%

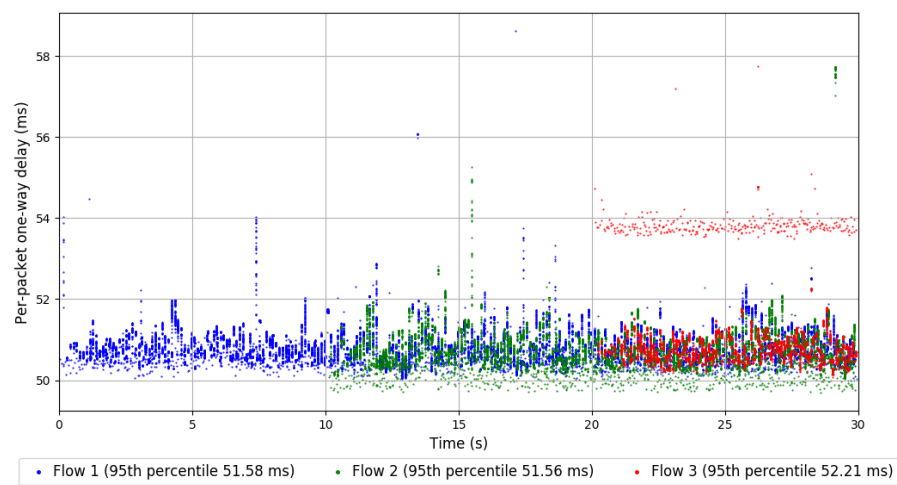
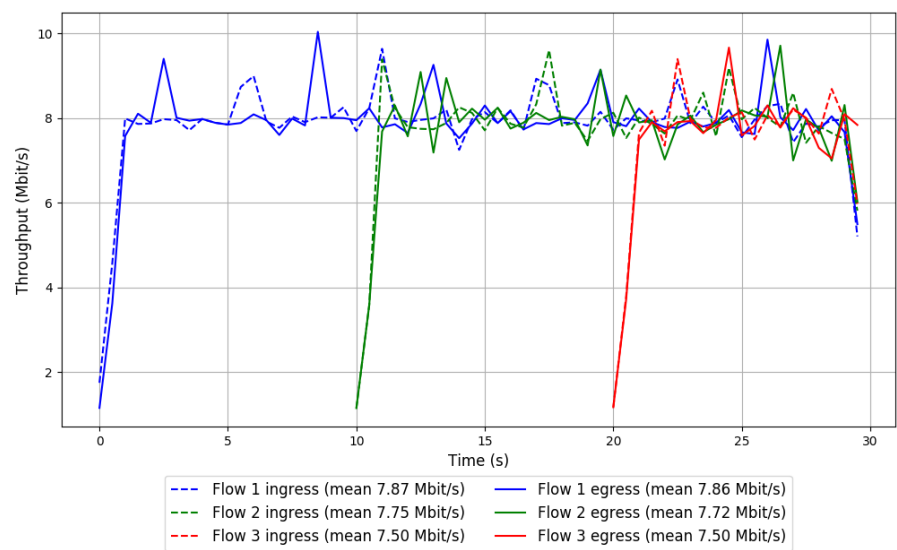
-- Flow 3:

Average throughput: 7.50 Mbit/s

95th percentile per-packet one-way delay: 52.206 ms

Loss rate: 0.00%

Run 7: Report of Sprout — Data Link



Run 8: Statistics of Sprout

Start at: 2017-09-19 01:08:46

End at: 2017-09-19 01:09:16

Below is generated by plot.py at 2017-09-19 03:42:19

Datalink statistics

-- Total of 3 flows:

Average throughput: 15.11 Mbit/s

95th percentile per-packet one-way delay: 51.759 ms

Loss rate: 0.32%

-- Flow 1:

Average throughput: 7.75 Mbit/s

95th percentile per-packet one-way delay: 53.356 ms

Loss rate: 0.52%

-- Flow 2:

Average throughput: 7.52 Mbit/s

95th percentile per-packet one-way delay: 51.545 ms

Loss rate: 0.17%

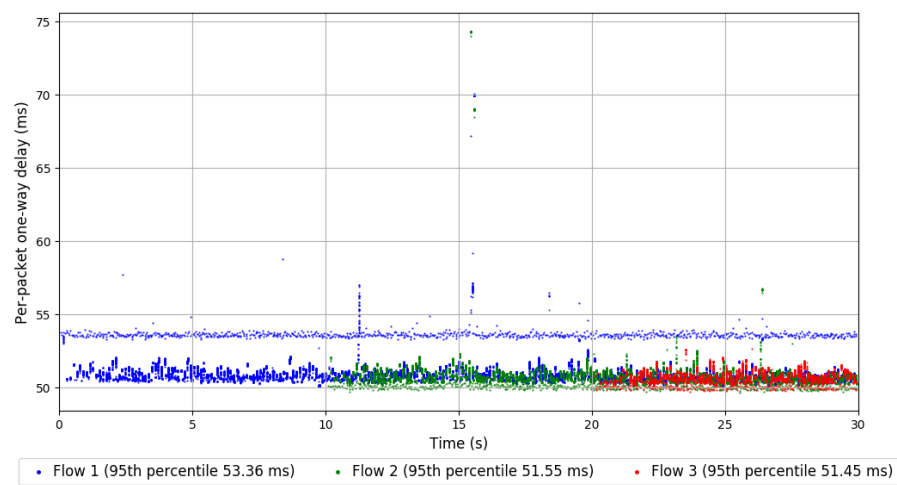
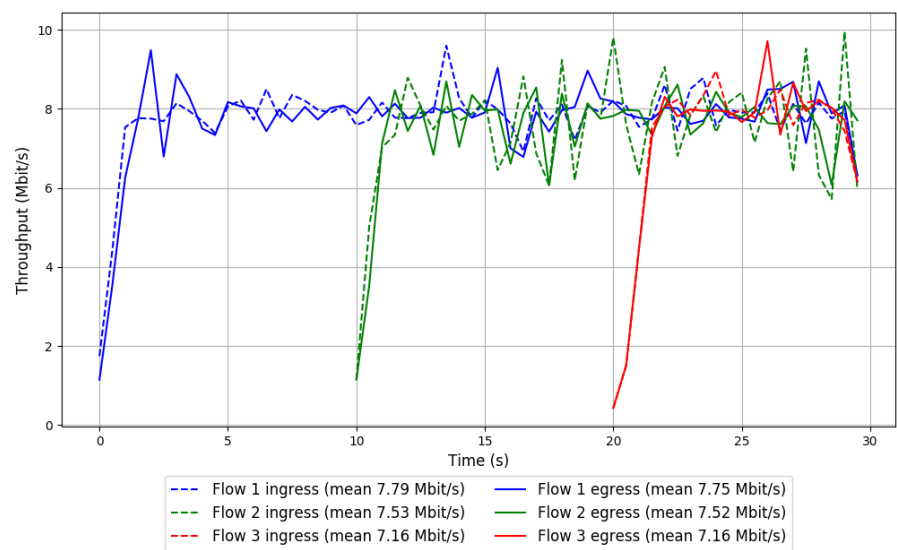
-- Flow 3:

Average throughput: 7.16 Mbit/s

95th percentile per-packet one-way delay: 51.449 ms

Loss rate: 0.00%

Run 8: Report of Sprout — Data Link



Run 9: Statistics of Sprout

Start at: 2017-09-19 01:17:31

End at: 2017-09-19 01:18:01

Below is generated by plot.py at 2017-09-19 03:42:19

Datalink statistics

-- Total of 3 flows:

Average throughput: 15.20 Mbit/s

95th percentile per-packet one-way delay: 51.229 ms

Loss rate: 0.52%

-- Flow 1:

Average throughput: 7.63 Mbit/s

95th percentile per-packet one-way delay: 51.237 ms

Loss rate: 0.78%

-- Flow 2:

Average throughput: 7.67 Mbit/s

95th percentile per-packet one-way delay: 51.258 ms

Loss rate: 0.37%

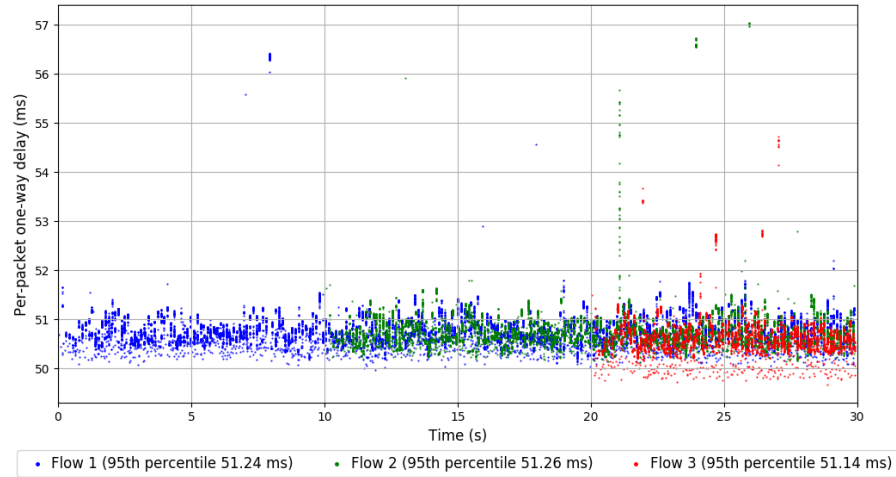
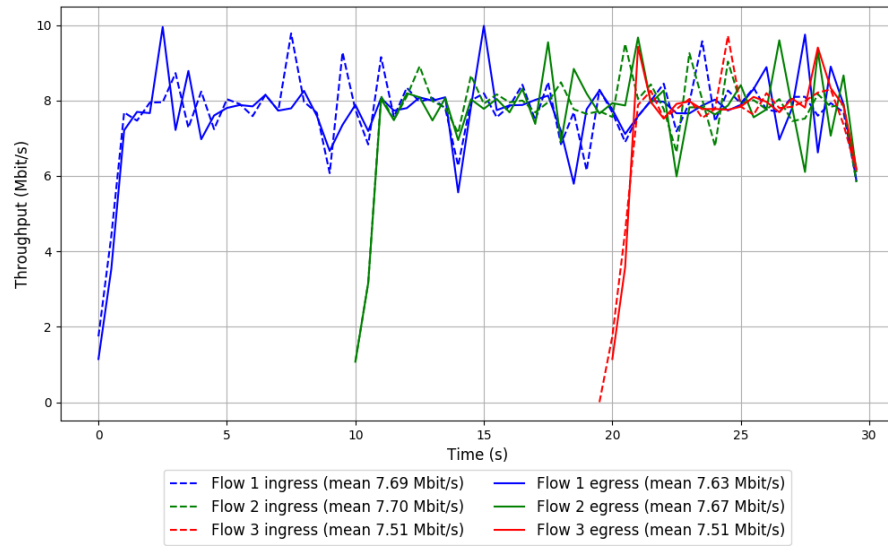
-- Flow 3:

Average throughput: 7.51 Mbit/s

95th percentile per-packet one-way delay: 51.142 ms

Loss rate: 0.00%

Run 9: Report of Sprout — Data Link



Run 10: Statistics of Sprout

Start at: 2017-09-19 01:26:49

End at: 2017-09-19 01:27:19

Below is generated by plot.py at 2017-09-19 03:42:19

Datalink statistics

-- Total of 3 flows:

Average throughput: 15.25 Mbit/s

95th percentile per-packet one-way delay: 51.695 ms

Loss rate: 0.03%

-- Flow 1:

Average throughput: 7.83 Mbit/s

95th percentile per-packet one-way delay: 52.120 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 7.79 Mbit/s

95th percentile per-packet one-way delay: 51.579 ms

Loss rate: 0.00%

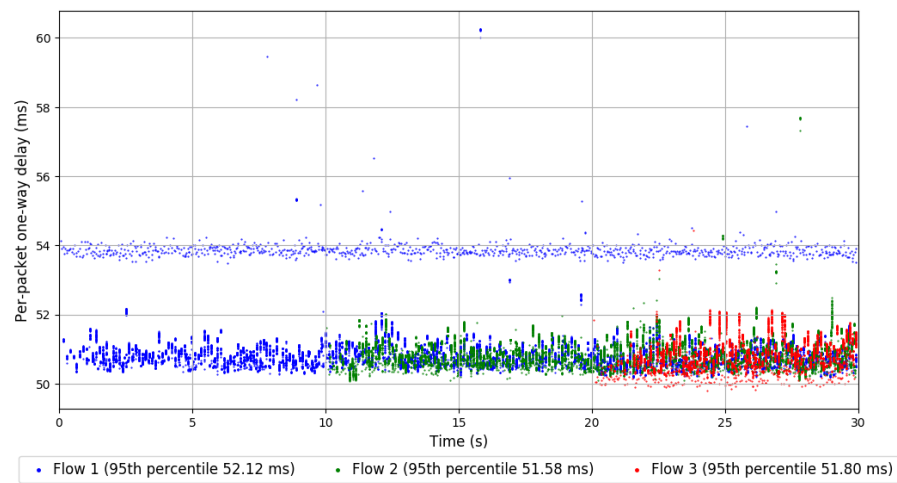
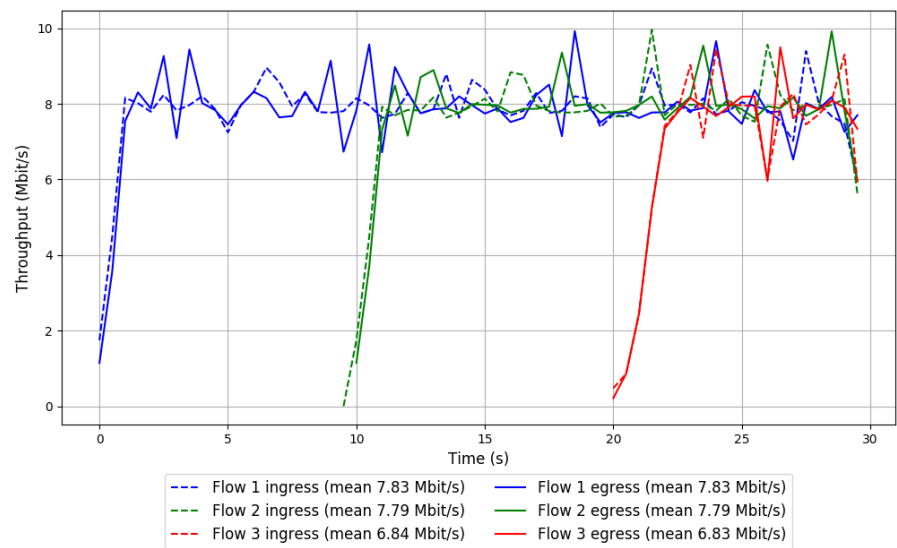
-- Flow 3:

Average throughput: 6.83 Mbit/s

95th percentile per-packet one-way delay: 51.803 ms

Loss rate: 0.19%

Run 10: Report of Sprout — Data Link

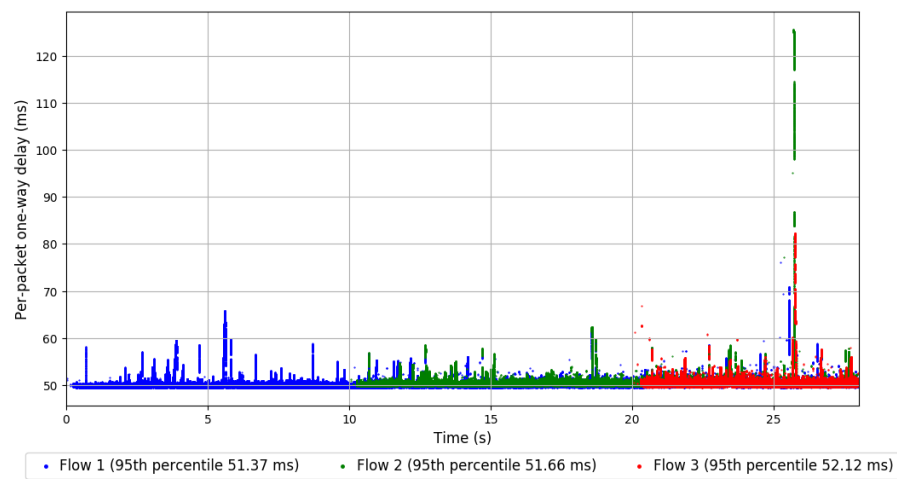
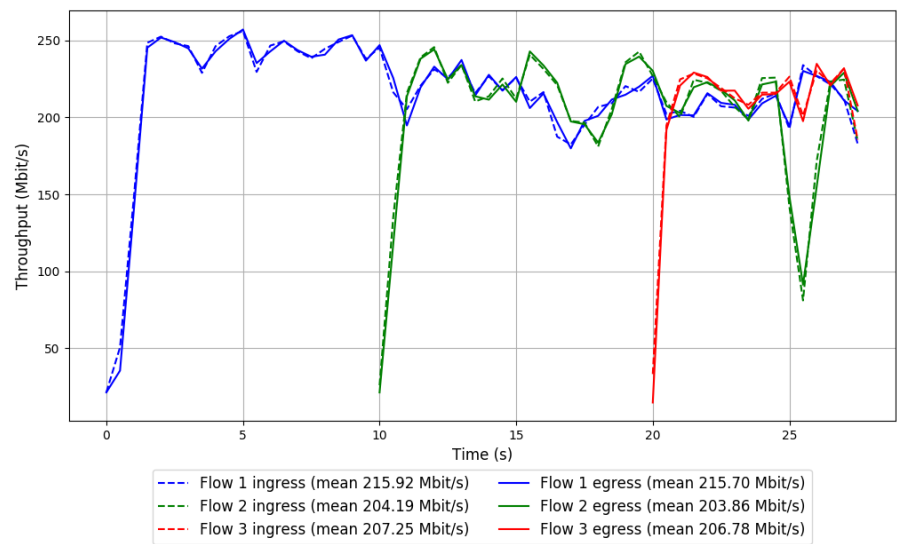


```
Run 1: Statistics of TaoVA-100x

Start at: 2017-09-19 00:02:42
End at: 2017-09-19 00:03:12

# Below is generated by plot.py at 2017-09-19 03:47:21
# Datalink statistics
-- Total of 3 flows:
Average throughput: 405.05 Mbit/s
95th percentile per-packet one-way delay: 51.580 ms
Loss rate: 0.14%
-- Flow 1:
Average throughput: 215.70 Mbit/s
95th percentile per-packet one-way delay: 51.373 ms
Loss rate: 0.10%
-- Flow 2:
Average throughput: 203.86 Mbit/s
95th percentile per-packet one-way delay: 51.660 ms
Loss rate: 0.17%
-- Flow 3:
Average throughput: 206.78 Mbit/s
95th percentile per-packet one-way delay: 52.120 ms
Loss rate: 0.21%
```

Run 1: Report of TaoVA-100x — Data Link

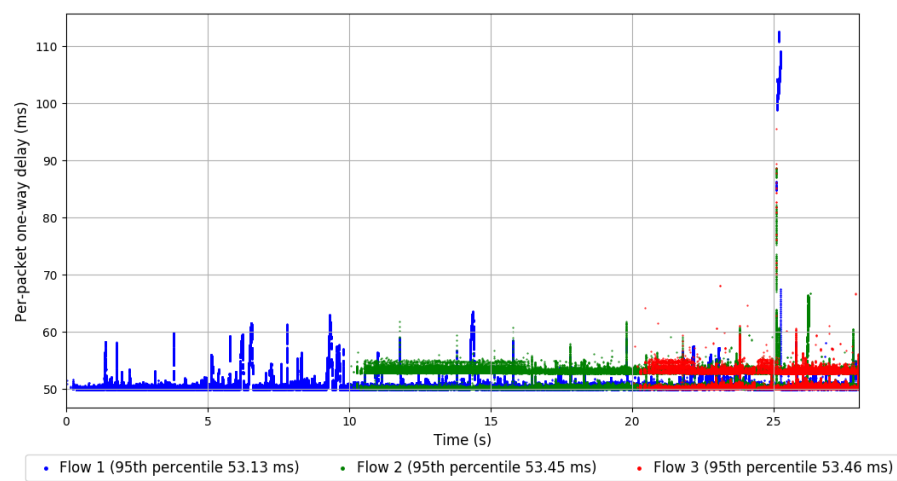
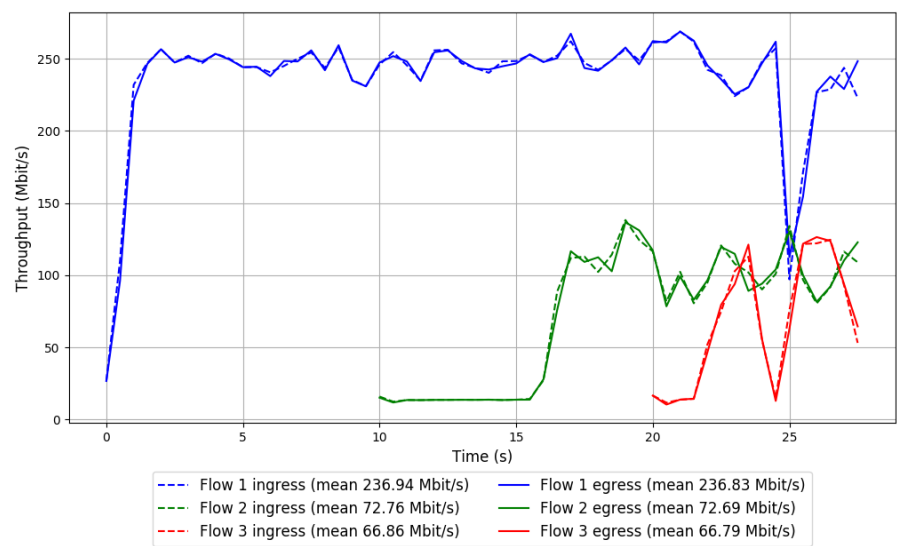


```
Run 2: Statistics of TaoVA-100x

Start at: 2017-09-19 00:12:07
End at: 2017-09-19 00:12:37

# Below is generated by plot.py at 2017-09-19 03:47:21
# Datalink statistics
-- Total of 3 flows:
Average throughput: 302.40 Mbit/s
95th percentile per-packet one-way delay: 53.373 ms
Loss rate: 0.06%
-- Flow 1:
Average throughput: 236.83 Mbit/s
95th percentile per-packet one-way delay: 53.135 ms
Loss rate: 0.05%
-- Flow 2:
Average throughput: 72.69 Mbit/s
95th percentile per-packet one-way delay: 53.447 ms
Loss rate: 0.09%
-- Flow 3:
Average throughput: 66.79 Mbit/s
95th percentile per-packet one-way delay: 53.458 ms
Loss rate: 0.10%
```

Run 2: Report of TaoVA-100x — Data Link

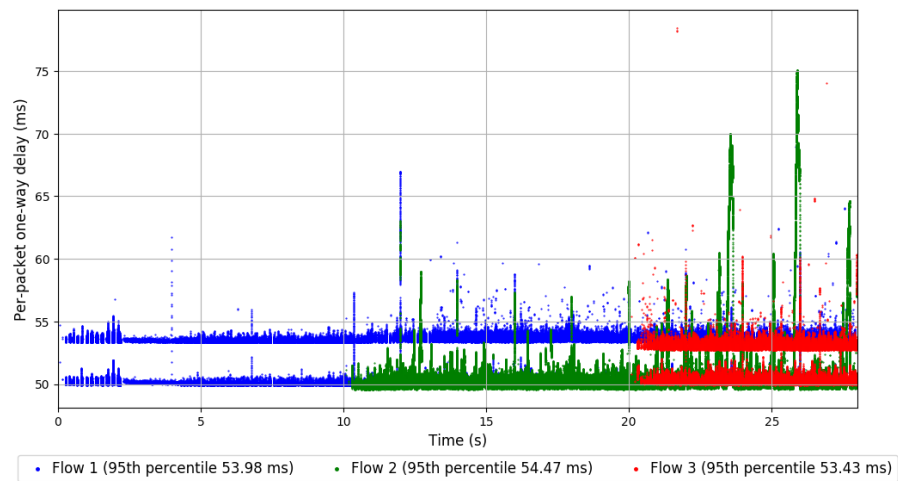
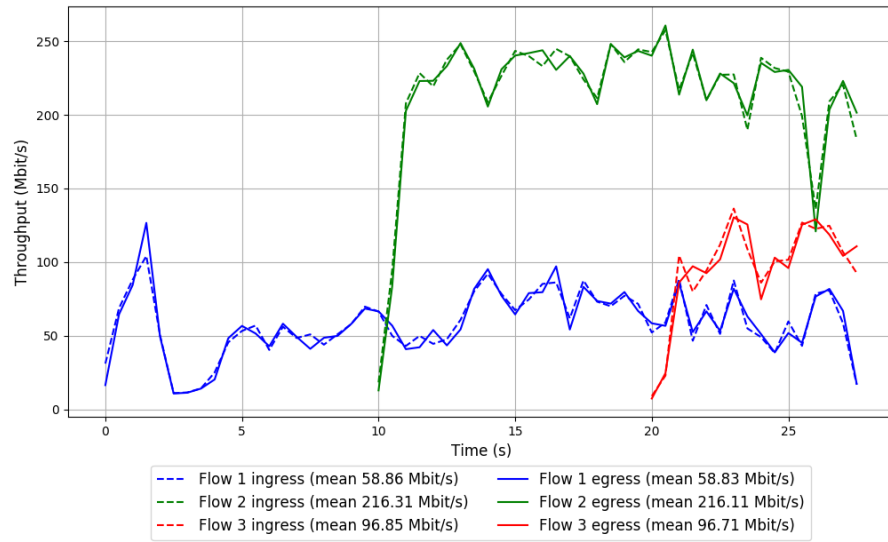


```
Run 3: Statistics of TaoVA-100x

Start at: 2017-09-19 00:21:13
End at: 2017-09-19 00:21:43

# Below is generated by plot.py at 2017-09-19 03:47:21
# Datalink statistics
-- Total of 3 flows:
Average throughput: 224.56 Mbit/s
95th percentile per-packet one-way delay: 53.957 ms
Loss rate: 0.08%
-- Flow 1:
Average throughput: 58.83 Mbit/s
95th percentile per-packet one-way delay: 53.981 ms
Loss rate: 0.04%
-- Flow 2:
Average throughput: 216.11 Mbit/s
95th percentile per-packet one-way delay: 54.473 ms
Loss rate: 0.09%
-- Flow 3:
Average throughput: 96.71 Mbit/s
95th percentile per-packet one-way delay: 53.431 ms
Loss rate: 0.14%
```


Run 3: Report of TaoVA-100x — Data Link

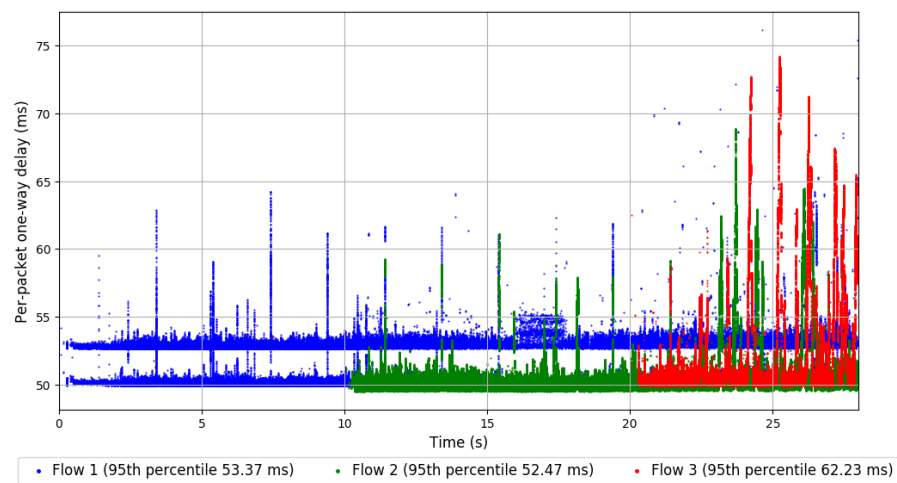
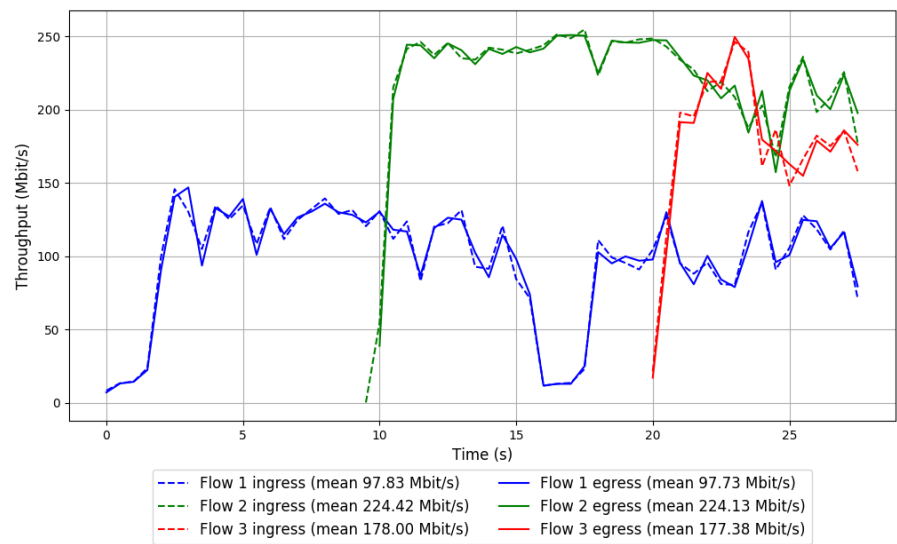


```
Run 4: Statistics of TaoVA-100x

Start at: 2017-09-19 00:30:03
End at: 2017-09-19 00:30:33

# Below is generated by plot.py at 2017-09-19 03:47:21
# Datalink statistics
-- Total of 3 flows:
Average throughput: 291.84 Mbit/s
95th percentile per-packet one-way delay: 54.026 ms
Loss rate: 0.15%
-- Flow 1:
Average throughput: 97.73 Mbit/s
95th percentile per-packet one-way delay: 53.366 ms
Loss rate: 0.09%
-- Flow 2:
Average throughput: 224.13 Mbit/s
95th percentile per-packet one-way delay: 52.472 ms
Loss rate: 0.14%
-- Flow 3:
Average throughput: 177.38 Mbit/s
95th percentile per-packet one-way delay: 62.230 ms
Loss rate: 0.33%
```

Run 4: Report of TaoVA-100x — Data Link

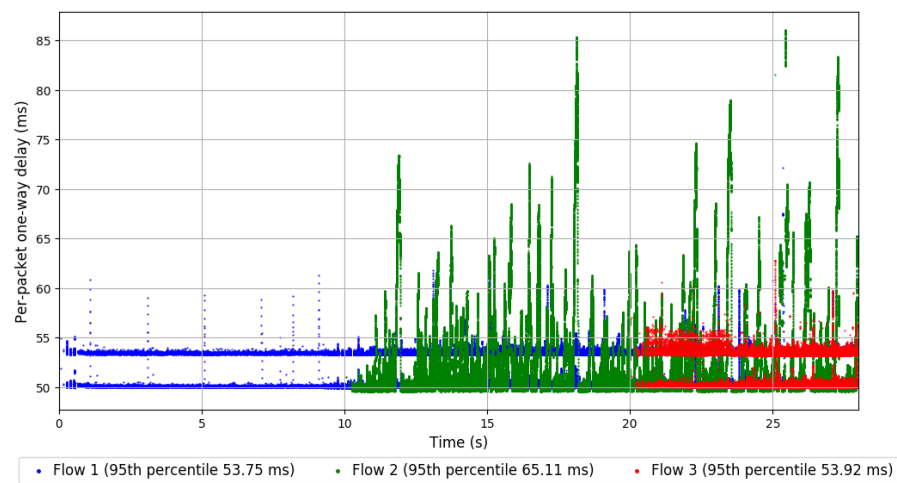
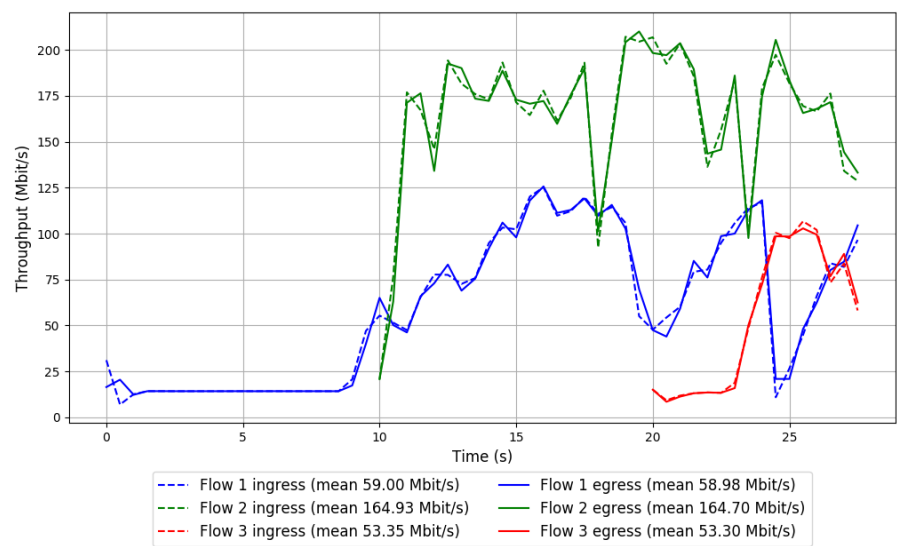


```
Run 5: Statistics of TaoVA-100x

Start at: 2017-09-19 00:39:10
End at: 2017-09-19 00:39:40

# Below is generated by plot.py at 2017-09-19 03:47:21
# Datalink statistics
-- Total of 3 flows:
Average throughput: 179.72 Mbit/s
95th percentile per-packet one-way delay: 61.364 ms
Loss rate: 0.09%
-- Flow 1:
Average throughput: 58.98 Mbit/s
95th percentile per-packet one-way delay: 53.753 ms
Loss rate: 0.04%
-- Flow 2:
Average throughput: 164.70 Mbit/s
95th percentile per-packet one-way delay: 65.113 ms
Loss rate: 0.13%
-- Flow 3:
Average throughput: 53.30 Mbit/s
95th percentile per-packet one-way delay: 53.917 ms
Loss rate: 0.06%
```

Run 5: Report of TaoVA-100x — Data Link



Run 6: Statistics of TaoVA-100x

Start at: 2017-09-19 00:48:08

End at: 2017-09-19 00:48:38

Below is generated by plot.py at 2017-09-19 03:47:21

Datalink statistics

-- Total of 3 flows:

Average throughput: 369.79 Mbit/s

95th percentile per-packet one-way delay: 55.556 ms

Loss rate: 0.11%

-- Flow 1:

Average throughput: 216.35 Mbit/s

95th percentile per-packet one-way delay: 55.971 ms

Loss rate: 0.09%

-- Flow 2:

Average throughput: 217.71 Mbit/s

95th percentile per-packet one-way delay: 55.387 ms

Loss rate: 0.14%

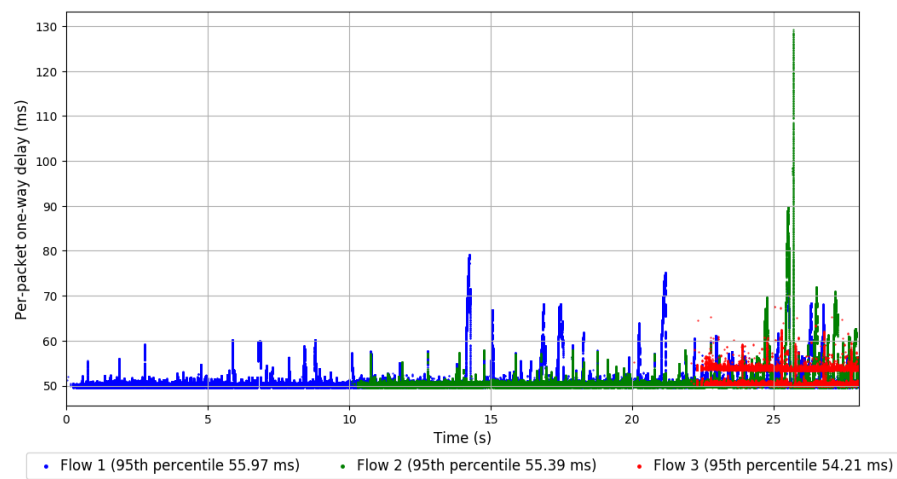
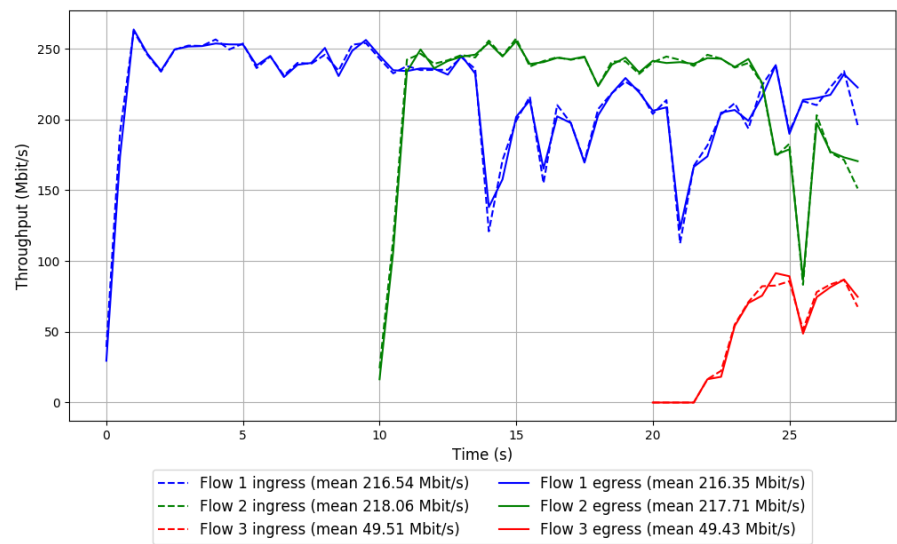
-- Flow 3:

Average throughput: 49.43 Mbit/s

95th percentile per-packet one-way delay: 54.214 ms

Loss rate: 0.18%

Run 6: Report of TaoVA-100x — Data Link



Run 7: Statistics of TaoVA-100x

Start at: 2017-09-19 00:57:25

End at: 2017-09-19 00:57:55

Below is generated by plot.py at 2017-09-19 03:51:57

Datalink statistics

-- Total of 3 flows:

Average throughput: 373.60 Mbit/s

95th percentile per-packet one-way delay: 55.344 ms

Loss rate: 0.19%

-- Flow 1:

Average throughput: 222.42 Mbit/s

95th percentile per-packet one-way delay: 54.142 ms

Loss rate: 0.21%

-- Flow 2:

Average throughput: 192.50 Mbit/s

95th percentile per-packet one-way delay: 57.427 ms

Loss rate: 0.20%

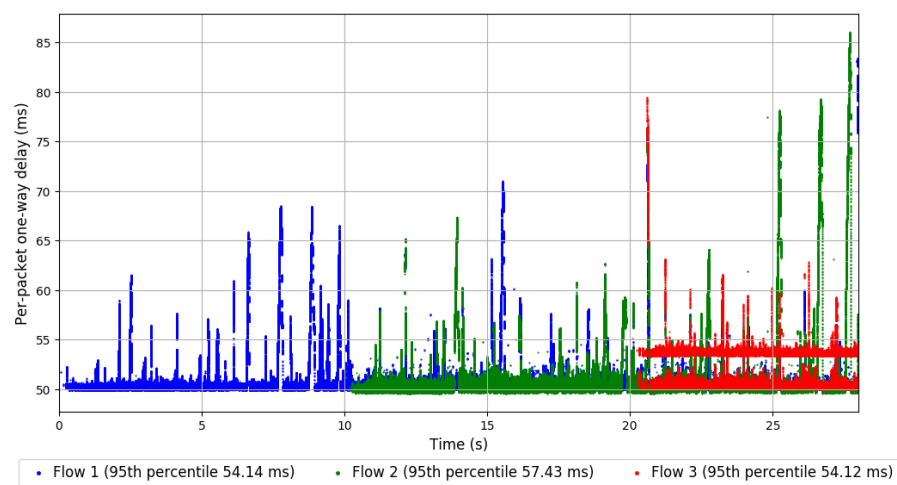
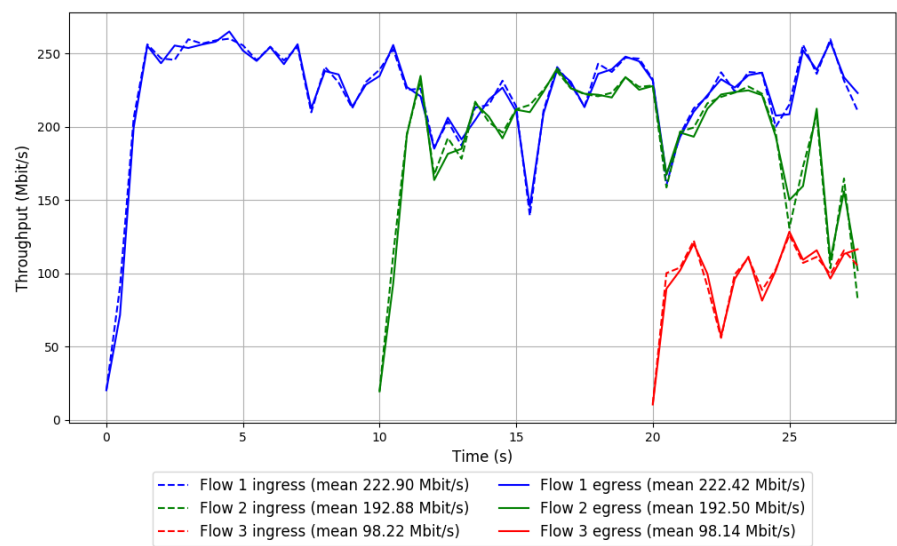
-- Flow 3:

Average throughput: 98.14 Mbit/s

95th percentile per-packet one-way delay: 54.118 ms

Loss rate: 0.08%

Run 7: Report of TaoVA-100x — Data Link



Run 8: Statistics of TaoVA-100x

Start at: 2017-09-19 01:06:45

End at: 2017-09-19 01:07:15

Below is generated by plot.py at 2017-09-19 03:51:57

Datalink statistics

-- Total of 3 flows:

Average throughput: 230.51 Mbit/s

95th percentile per-packet one-way delay: 62.960 ms

Loss rate: 0.06%

-- Flow 1:

Average throughput: 73.57 Mbit/s

95th percentile per-packet one-way delay: 54.067 ms

Loss rate: 0.05%

-- Flow 2:

Average throughput: 162.87 Mbit/s

95th percentile per-packet one-way delay: 66.960 ms

Loss rate: 0.05%

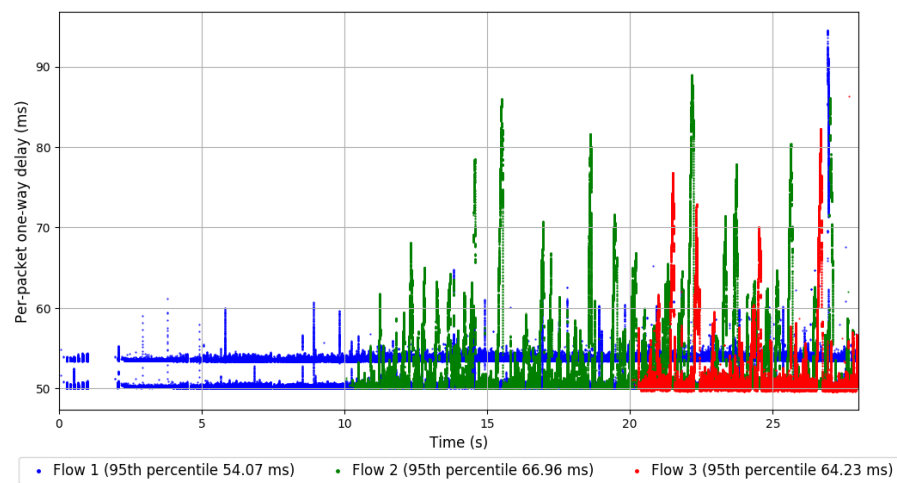
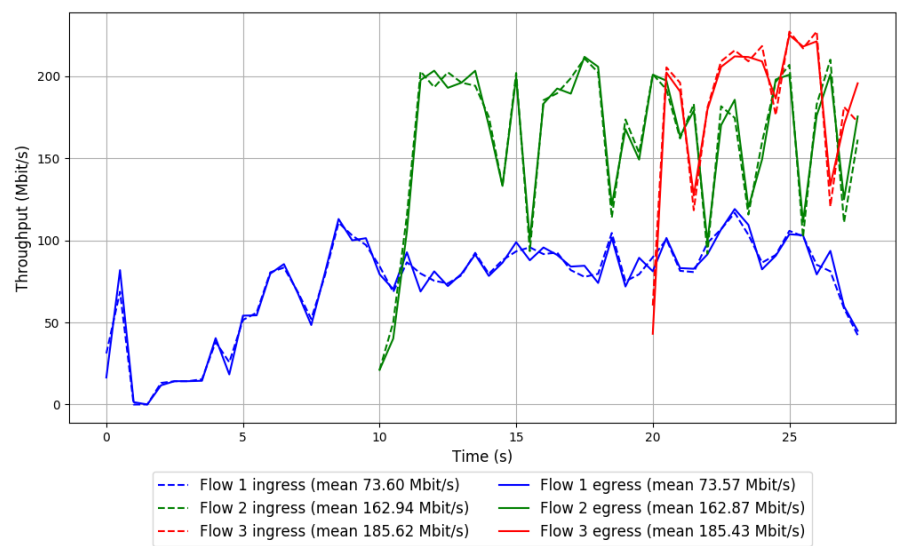
-- Flow 3:

Average throughput: 185.43 Mbit/s

95th percentile per-packet one-way delay: 64.232 ms

Loss rate: 0.10%

Run 8: Report of TaoVA-100x — Data Link



Run 9: Statistics of TaoVA-100x

Start at: 2017-09-19 01:15:46

End at: 2017-09-19 01:16:16

Below is generated by plot.py at 2017-09-19 03:51:57

Datalink statistics

-- Total of 3 flows:

Average throughput: 156.50 Mbit/s

95th percentile per-packet one-way delay: 55.468 ms

Loss rate: 0.06%

-- Flow 1:

Average throughput: 61.34 Mbit/s

95th percentile per-packet one-way delay: 53.906 ms

Loss rate: 0.03%

-- Flow 2:

Average throughput: 76.45 Mbit/s

95th percentile per-packet one-way delay: 53.868 ms

Loss rate: 0.07%

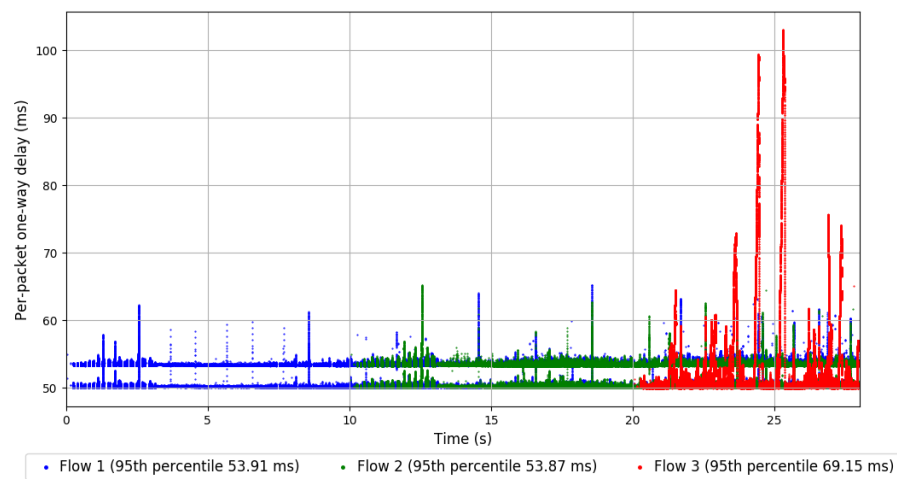
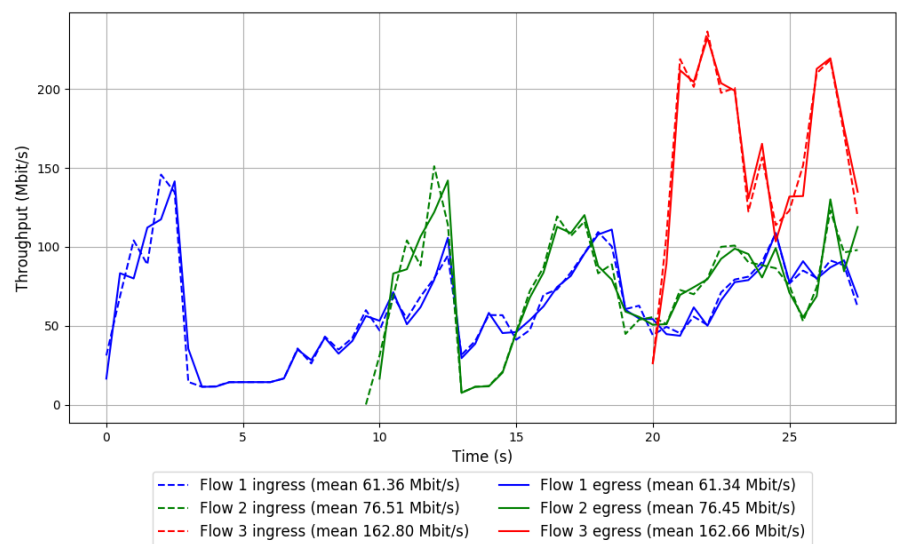
-- Flow 3:

Average throughput: 162.66 Mbit/s

95th percentile per-packet one-way delay: 69.146 ms

Loss rate: 0.09%

Run 9: Report of TaoVA-100x — Data Link

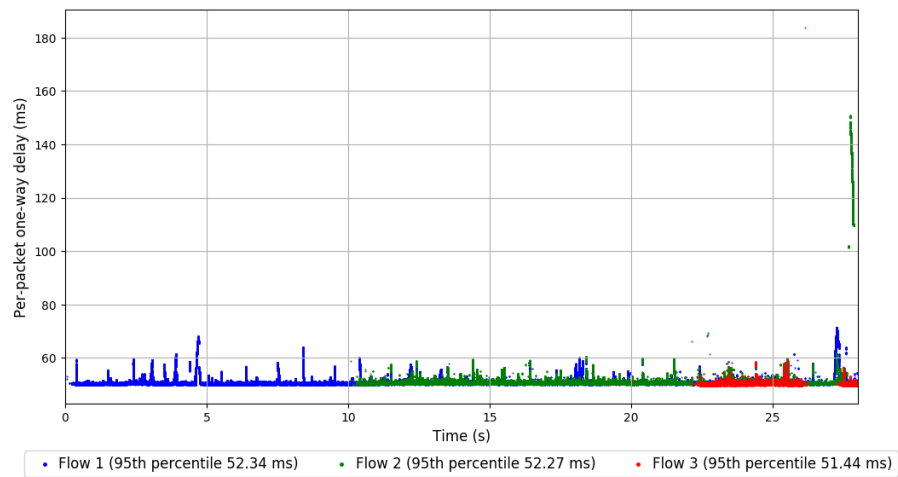
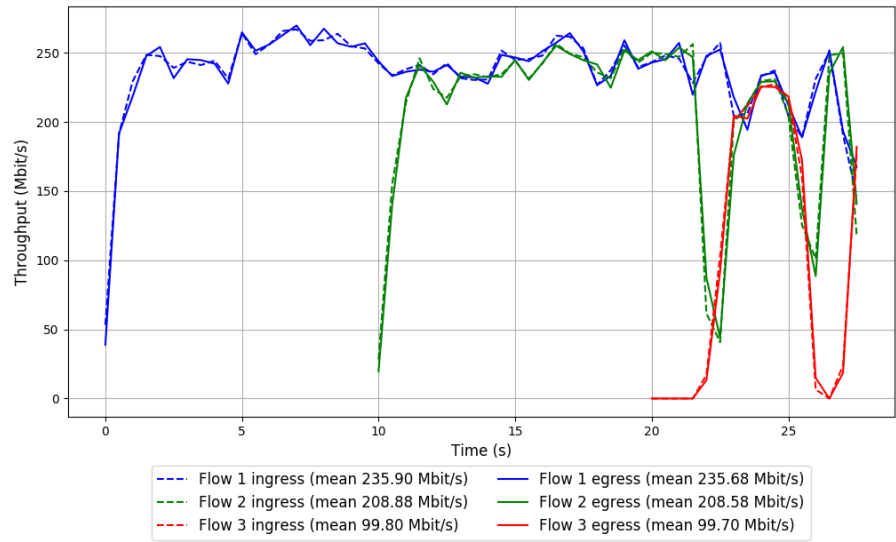


```
Run 10: Statistics of TaoVA-100x

Start at: 2017-09-19 01:24:28
End at: 2017-09-19 01:24:58

# Below is generated by plot.py at 2017-09-19 03:54:50
# Datalink statistics
-- Total of 3 flows:
Average throughput: 397.47 Mbit/s
95th percentile per-packet one-way delay: 52.197 ms
Loss rate: 0.11%
-- Flow 1:
Average throughput: 235.68 Mbit/s
95th percentile per-packet one-way delay: 52.345 ms
Loss rate: 0.09%
-- Flow 2:
Average throughput: 208.58 Mbit/s
95th percentile per-packet one-way delay: 52.269 ms
Loss rate: 0.15%
-- Flow 3:
Average throughput: 99.70 Mbit/s
95th percentile per-packet one-way delay: 51.438 ms
Loss rate: 0.11%
```

Run 10: Report of TaoVA-100x — Data Link



Run 1: Statistics of TCP Vegas

Start at: 2017-09-19 00:09:44

End at: 2017-09-19 00:10:14

Below is generated by plot.py at 2017-09-19 03:54:50

Datalink statistics

-- Total of 3 flows:

Average throughput: 75.14 Mbit/s

95th percentile per-packet one-way delay: 52.205 ms

Loss rate: 0.02%

-- Flow 1:

Average throughput: 25.04 Mbit/s

95th percentile per-packet one-way delay: 52.228 ms

Loss rate: 0.03%

-- Flow 2:

Average throughput: 41.01 Mbit/s

95th percentile per-packet one-way delay: 52.150 ms

Loss rate: 0.02%

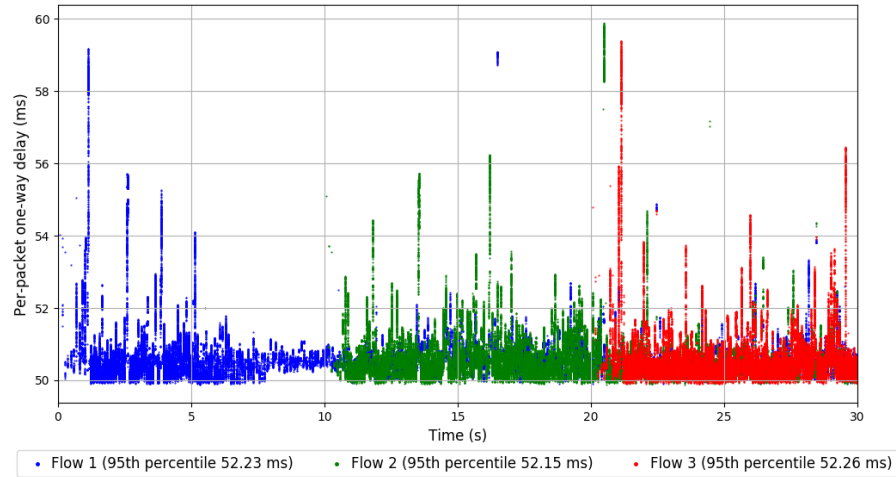
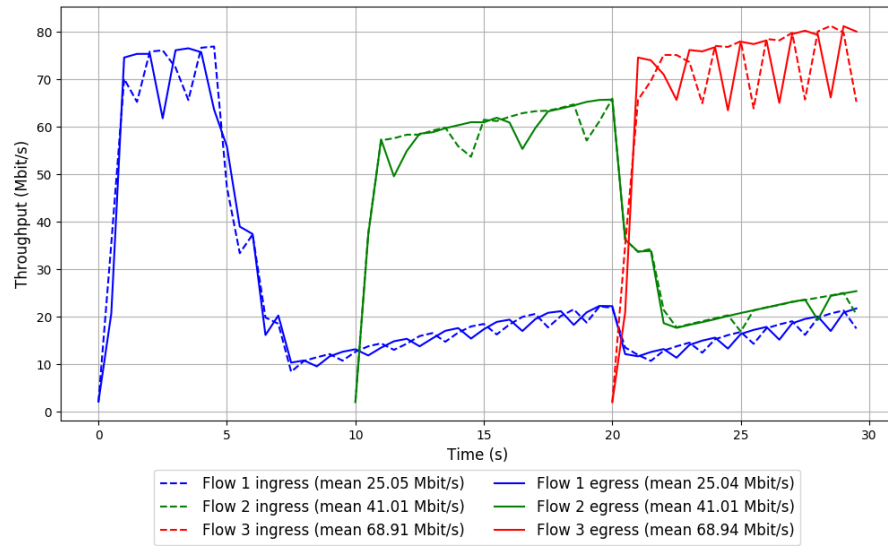
-- Flow 3:

Average throughput: 68.94 Mbit/s

95th percentile per-packet one-way delay: 52.255 ms

Loss rate: 0.00%

Run 1: Report of TCP Vegas — Data Link



Run 2: Statistics of TCP Vegas

Start at: 2017-09-19 00:18:57

End at: 2017-09-19 00:19:27

Below is generated by plot.py at 2017-09-19 03:54:51

Datalink statistics

-- Total of 3 flows:

Average throughput: 85.53 Mbit/s

95th percentile per-packet one-way delay: 52.270 ms

Loss rate: 0.06%

-- Flow 1:

Average throughput: 29.51 Mbit/s

95th percentile per-packet one-way delay: 51.995 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 44.99 Mbit/s

95th percentile per-packet one-way delay: 51.557 ms

Loss rate: 0.07%

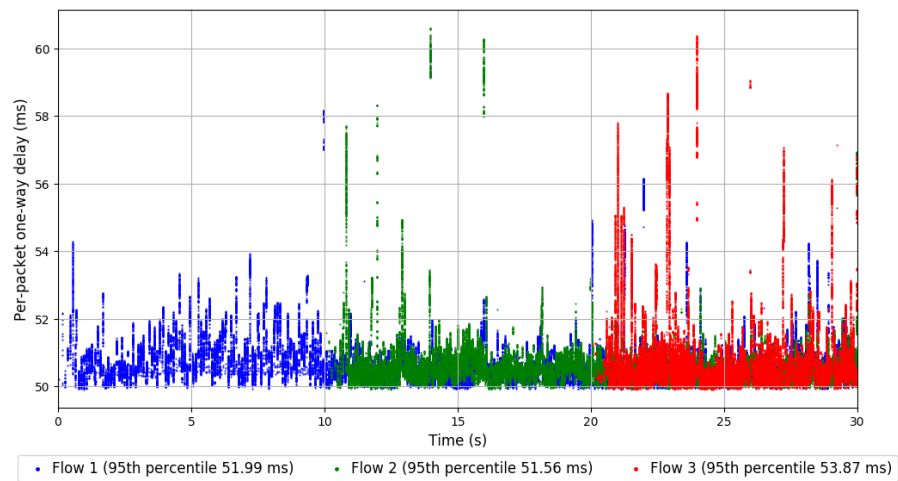
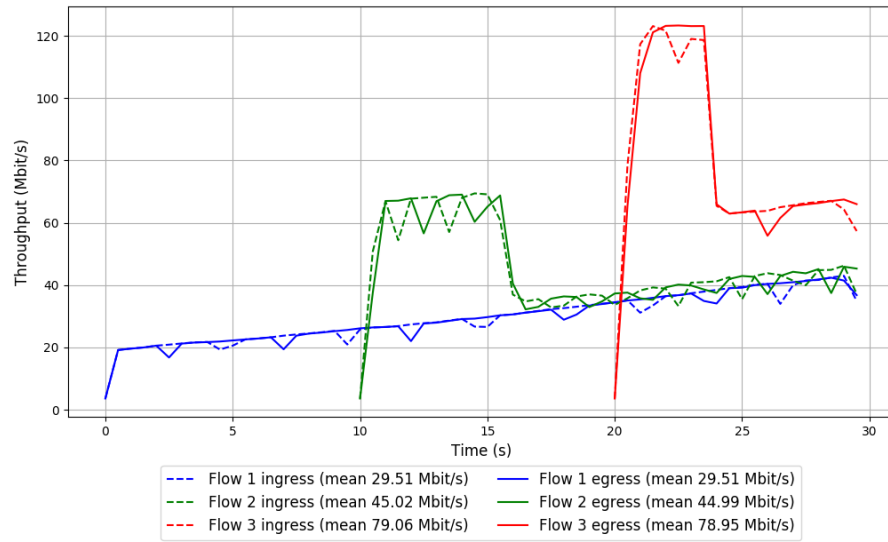
-- Flow 3:

Average throughput: 78.95 Mbit/s

95th percentile per-packet one-way delay: 53.867 ms

Loss rate: 0.13%

Run 2: Report of TCP Vegas — Data Link



Run 3: Statistics of TCP Vegas

Start at: 2017-09-19 00:27:49

End at: 2017-09-19 00:28:19

Below is generated by plot.py at 2017-09-19 03:54:51

Datalink statistics

-- Total of 3 flows:

Average throughput: 123.42 Mbit/s

95th percentile per-packet one-way delay: 52.284 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 82.90 Mbit/s

95th percentile per-packet one-way delay: 52.727 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 42.07 Mbit/s

95th percentile per-packet one-way delay: 51.661 ms

Loss rate: 0.00%

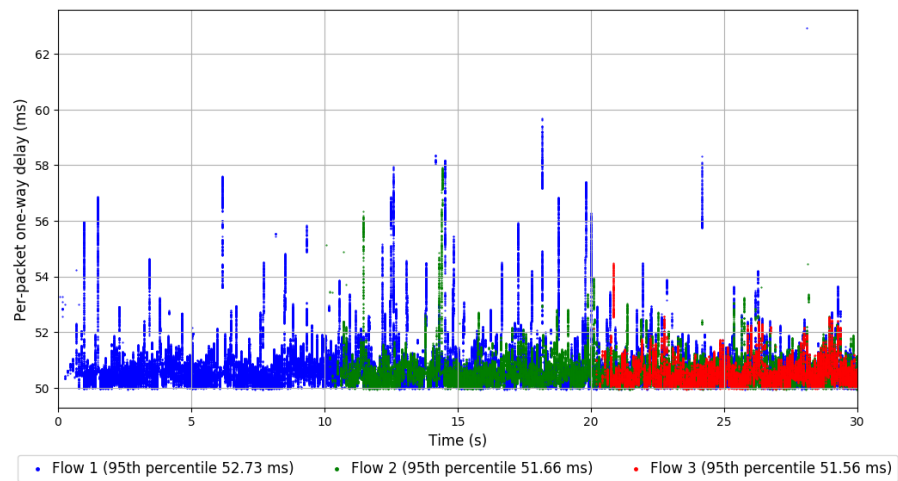
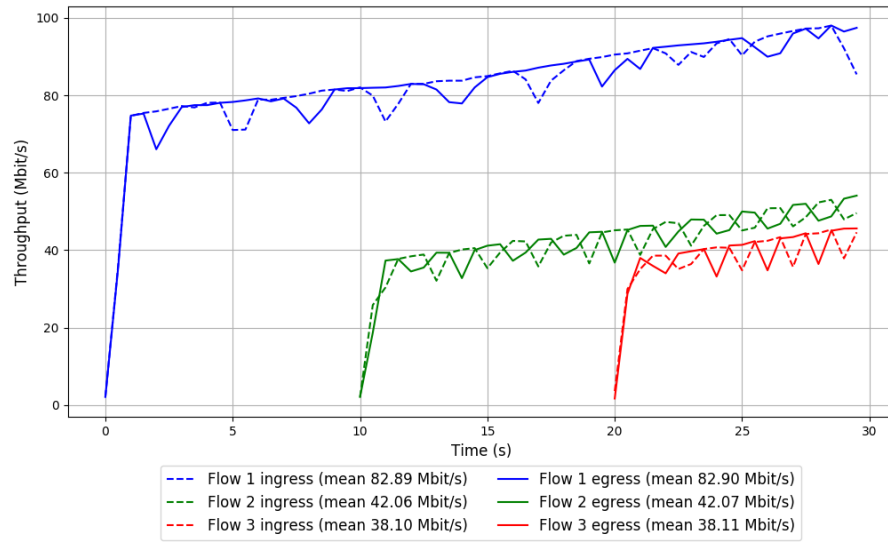
-- Flow 3:

Average throughput: 38.11 Mbit/s

95th percentile per-packet one-way delay: 51.557 ms

Loss rate: 0.00%

Run 3: Report of TCP Vegas — Data Link



Run 4: Statistics of TCP Vegas

Start at: 2017-09-19 00:36:45

End at: 2017-09-19 00:37:15

Below is generated by plot.py at 2017-09-19 03:54:51

Datalink statistics

-- Total of 3 flows:

Average throughput: 67.44 Mbit/s

95th percentile per-packet one-way delay: 52.378 ms

Loss rate: 0.06%

-- Flow 1:

Average throughput: 43.58 Mbit/s

95th percentile per-packet one-way delay: 52.650 ms

Loss rate: 0.07%

-- Flow 2:

Average throughput: 32.92 Mbit/s

95th percentile per-packet one-way delay: 51.881 ms

Loss rate: 0.06%

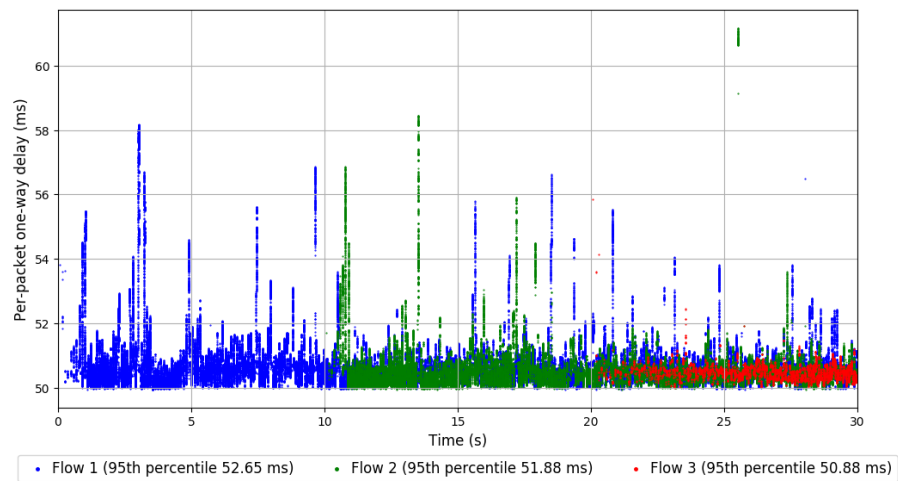
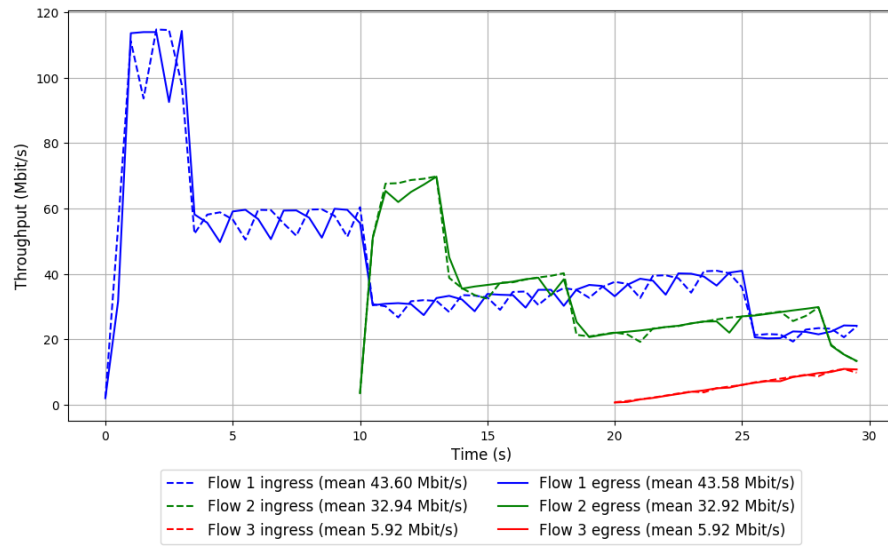
-- Flow 3:

Average throughput: 5.92 Mbit/s

95th percentile per-packet one-way delay: 50.882 ms

Loss rate: 0.08%

Run 4: Report of TCP Vegas — Data Link



Run 5: Statistics of TCP Vegas

Start at: 2017-09-19 00:45:43

End at: 2017-09-19 00:46:13

Below is generated by plot.py at 2017-09-19 03:54:51

Datalink statistics

-- Total of 3 flows:

Average throughput: 108.17 Mbit/s

95th percentile per-packet one-way delay: 52.848 ms

Loss rate: 0.00%

-- Flow 1:

Average throughput: 81.75 Mbit/s

95th percentile per-packet one-way delay: 53.294 ms

Loss rate: 0.00%

-- Flow 2:

Average throughput: 30.43 Mbit/s

95th percentile per-packet one-way delay: 51.795 ms

Loss rate: 0.00%

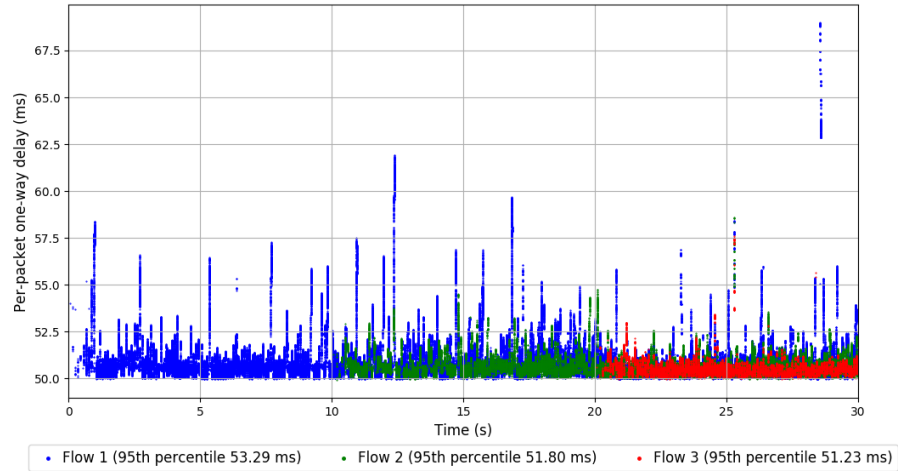
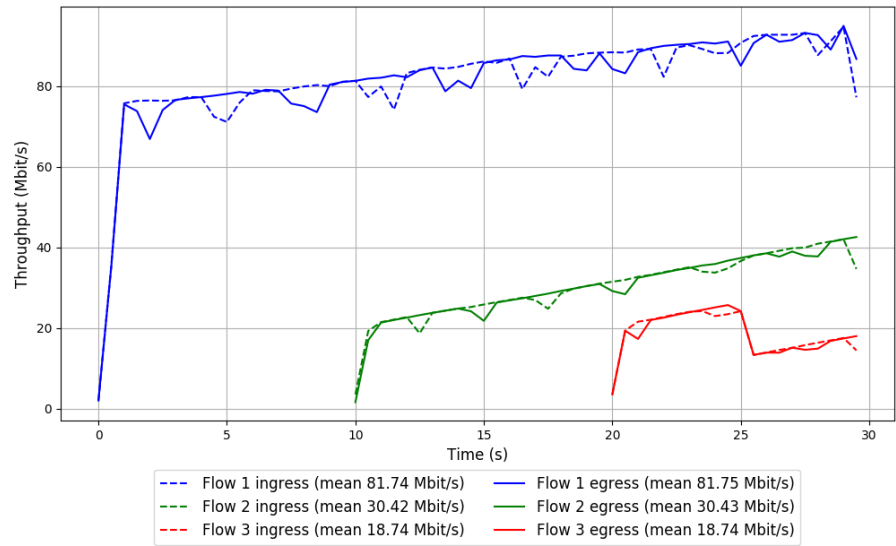
-- Flow 3:

Average throughput: 18.74 Mbit/s

95th percentile per-packet one-way delay: 51.226 ms

Loss rate: 0.01%

Run 5: Report of TCP Vegas — Data Link



Run 6: Statistics of TCP Vegas

Start at: 2017-09-19 00:55:05

End at: 2017-09-19 00:55:35

Below is generated by plot.py at 2017-09-19 03:54:51

Datalink statistics

-- Total of 3 flows:

Average throughput: 66.95 Mbit/s

95th percentile per-packet one-way delay: 51.647 ms

Loss rate: 0.06%

-- Flow 1:

Average throughput: 30.73 Mbit/s

95th percentile per-packet one-way delay: 51.523 ms

Loss rate: 0.05%

-- Flow 2:

Average throughput: 40.22 Mbit/s

95th percentile per-packet one-way delay: 51.796 ms

Loss rate: 0.07%

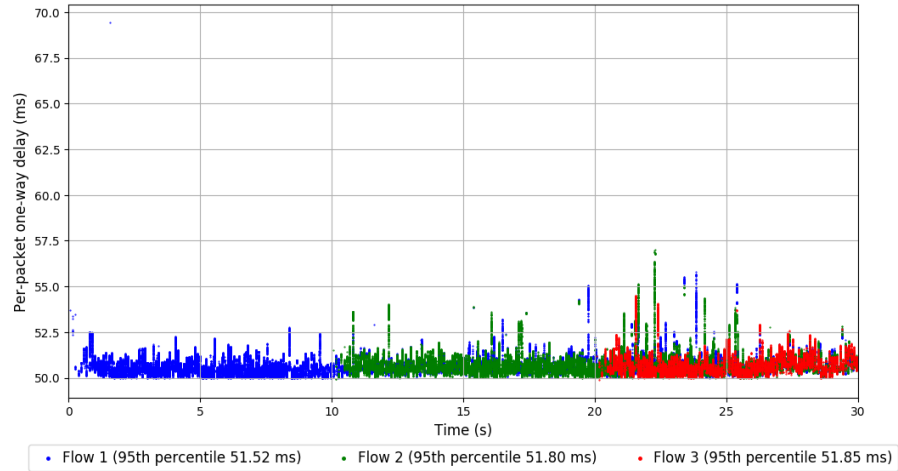
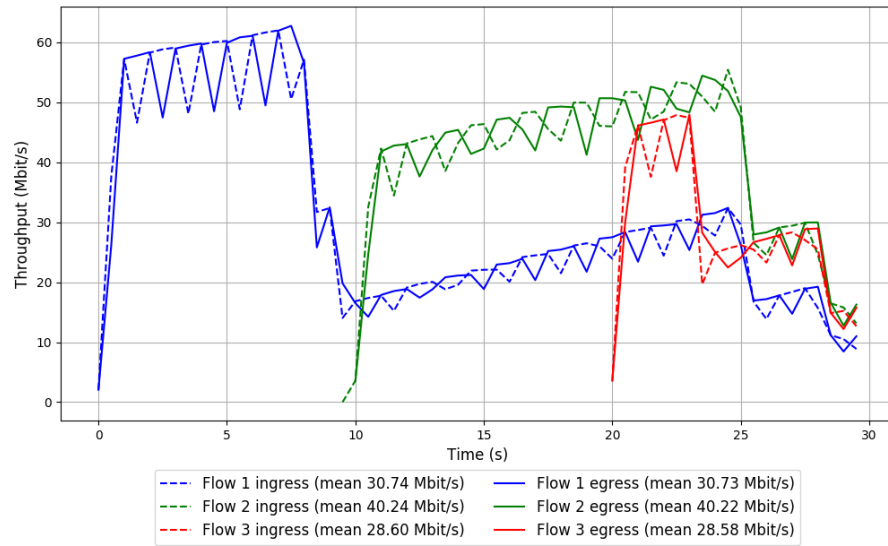
-- Flow 3:

Average throughput: 28.58 Mbit/s

95th percentile per-packet one-way delay: 51.854 ms

Loss rate: 0.08%

Run 6: Report of TCP Vegas — Data Link



Run 7: Statistics of TCP Vegas

Start at: 2017-09-19 01:04:21

End at: 2017-09-19 01:04:51

Below is generated by plot.py at 2017-09-19 03:54:51

Datalink statistics

-- Total of 3 flows:

Average throughput: 111.44 Mbit/s

95th percentile per-packet one-way delay: 53.749 ms

Loss rate: 0.03%

-- Flow 1:

Average throughput: 36.22 Mbit/s

95th percentile per-packet one-way delay: 52.973 ms

Loss rate: 0.05%

-- Flow 2:

Average throughput: 84.00 Mbit/s

95th percentile per-packet one-way delay: 53.409 ms

Loss rate: 0.02%

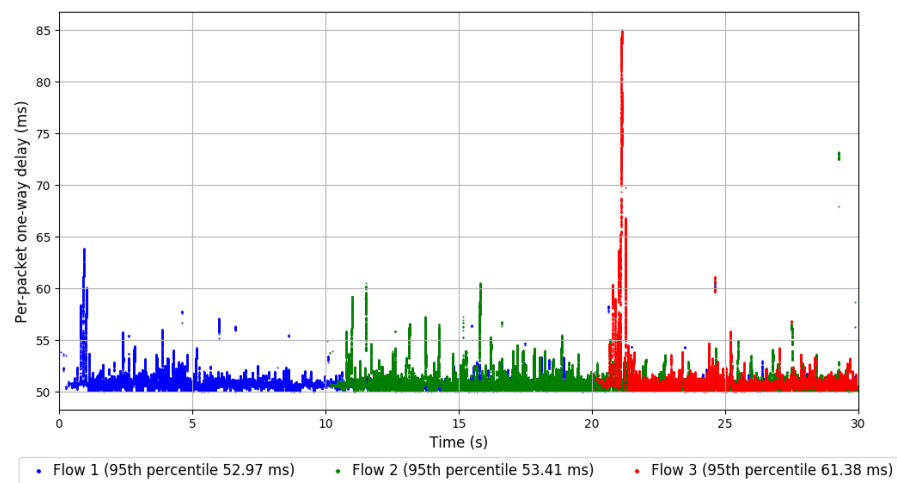
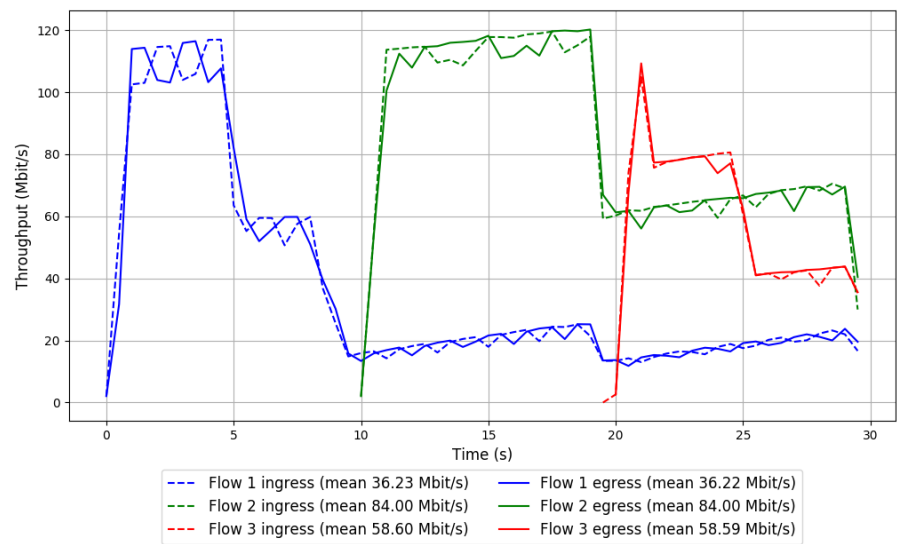
-- Flow 3:

Average throughput: 58.59 Mbit/s

95th percentile per-packet one-way delay: 61.377 ms

Loss rate: 0.03%

Run 7: Report of TCP Vegas — Data Link



Run 8: Statistics of TCP Vegas

Start at: 2017-09-19 01:13:24

End at: 2017-09-19 01:13:54

Below is generated by plot.py at 2017-09-19 03:54:51

Datalink statistics

-- Total of 3 flows:

Average throughput: 112.98 Mbit/s

95th percentile per-packet one-way delay: 52.487 ms

Loss rate: 0.07%

-- Flow 1:

Average throughput: 48.42 Mbit/s

95th percentile per-packet one-way delay: 52.865 ms

Loss rate: 0.07%

-- Flow 2:

Average throughput: 69.10 Mbit/s

95th percentile per-packet one-way delay: 52.035 ms

Loss rate: 0.06%

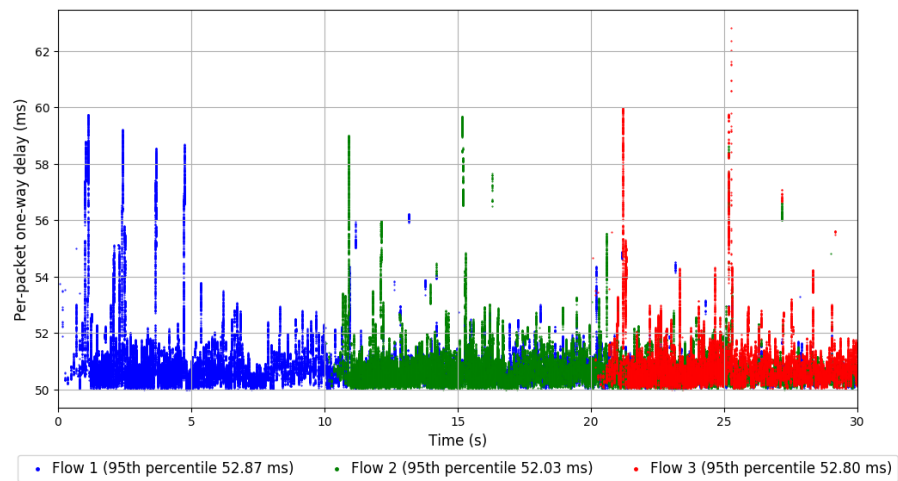
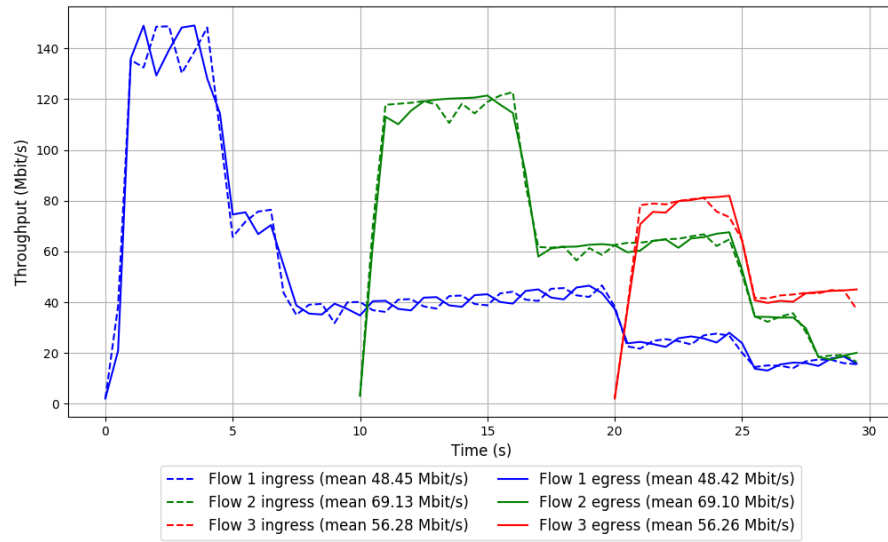
-- Flow 3:

Average throughput: 56.26 Mbit/s

95th percentile per-packet one-way delay: 52.805 ms

Loss rate: 0.08%

Run 8: Report of TCP Vegas — Data Link



Run 9: Statistics of TCP Vegas

Start at: 2017-09-19 01:22:06

End at: 2017-09-19 01:22:36

Below is generated by plot.py at 2017-09-19 03:54:51

Datalink statistics

-- Total of 3 flows:

Average throughput: 89.52 Mbit/s

95th percentile per-packet one-way delay: 52.324 ms

Loss rate: 0.05%

-- Flow 1:

Average throughput: 40.89 Mbit/s

95th percentile per-packet one-way delay: 52.054 ms

Loss rate: 0.06%

-- Flow 2:

Average throughput: 70.32 Mbit/s

95th percentile per-packet one-way delay: 52.651 ms

Loss rate: 0.04%

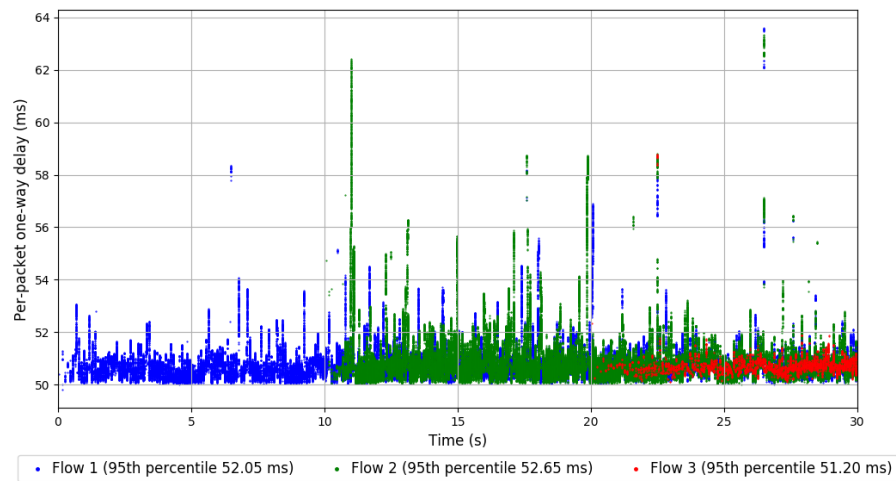
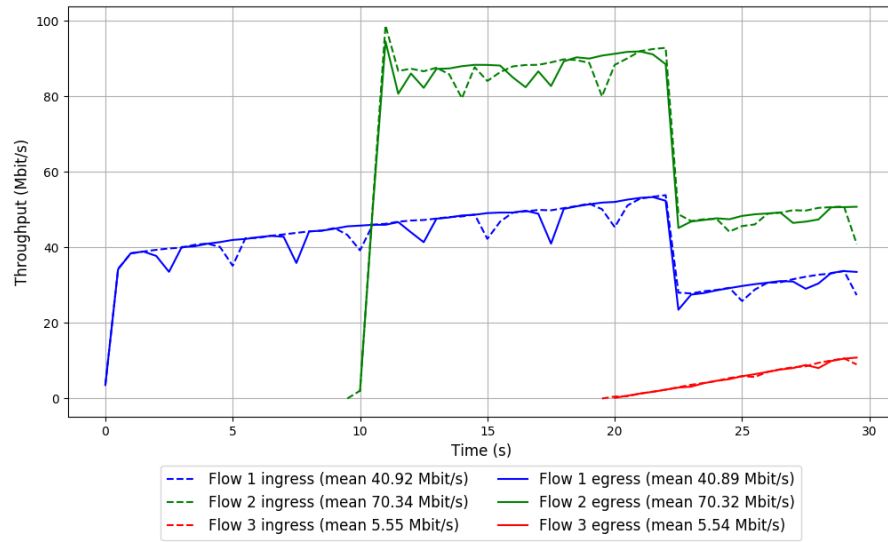
-- Flow 3:

Average throughput: 5.54 Mbit/s

95th percentile per-packet one-way delay: 51.200 ms

Loss rate: 0.20%

Run 9: Report of TCP Vegas — Data Link



Run 10: Statistics of TCP Vegas

Start at: 2017-09-19 01:31:21

End at: 2017-09-19 01:31:51

Below is generated by plot.py at 2017-09-19 03:54:51

Datalink statistics

-- Total of 3 flows:

Average throughput: 65.17 Mbit/s

95th percentile per-packet one-way delay: 54.770 ms

Loss rate: 0.14%

-- Flow 1:

Average throughput: 17.79 Mbit/s

95th percentile per-packet one-way delay: 52.910 ms

Loss rate: 0.42%

-- Flow 2:

Average throughput: 33.81 Mbit/s

95th percentile per-packet one-way delay: 53.412 ms

Loss rate: 0.06%

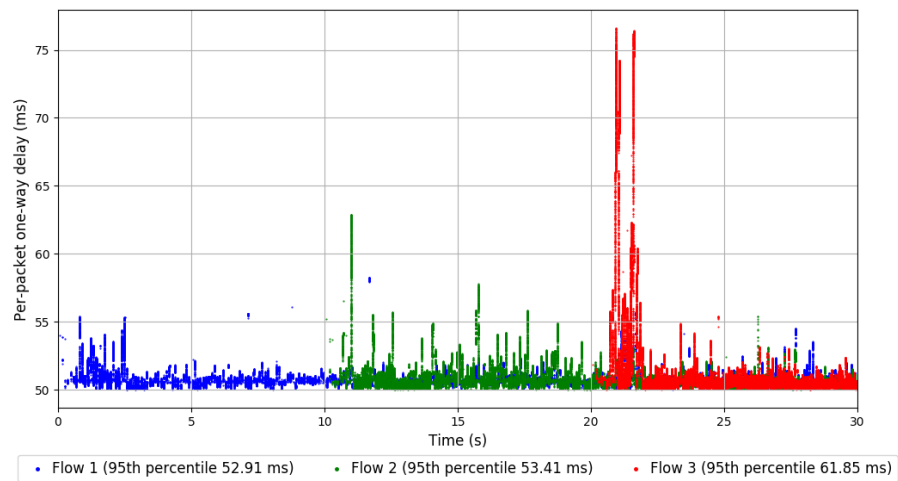
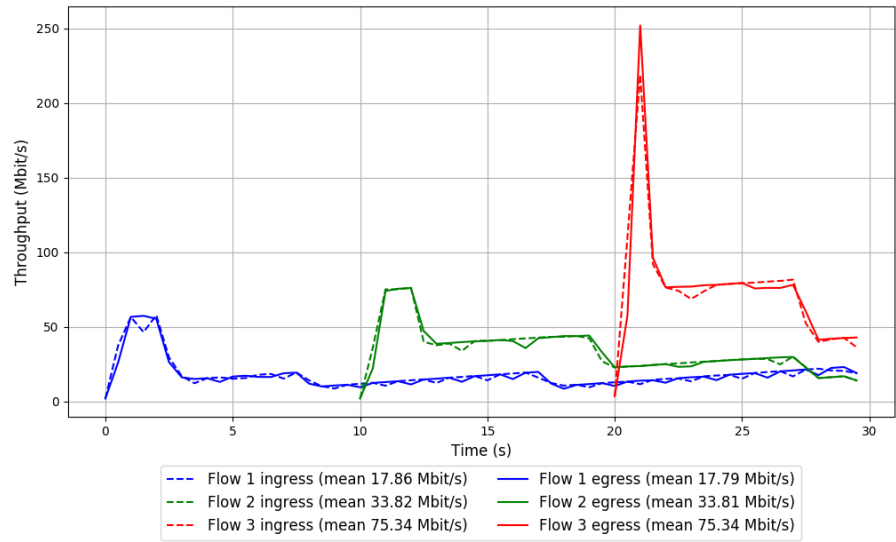
-- Flow 3:

Average throughput: 75.34 Mbit/s

95th percentile per-packet one-way delay: 61.850 ms

Loss rate: 0.02%

Run 10: Report of TCP Vegas — Data Link



Run 1: Statistics of Verus

Start at: 2017-09-19 00:08:34

End at: 2017-09-19 00:09:04

Below is generated by plot.py at 2017-09-19 03:55:19

Datalink statistics

-- Total of 3 flows:

Average throughput: 361.92 Mbit/s

95th percentile per-packet one-way delay: 147.217 ms

Loss rate: 0.39%

-- Flow 1:

Average throughput: 201.95 Mbit/s

95th percentile per-packet one-way delay: 167.782 ms

Loss rate: 0.45%

-- Flow 2:

Average throughput: 162.65 Mbit/s

95th percentile per-packet one-way delay: 132.312 ms

Loss rate: 0.24%

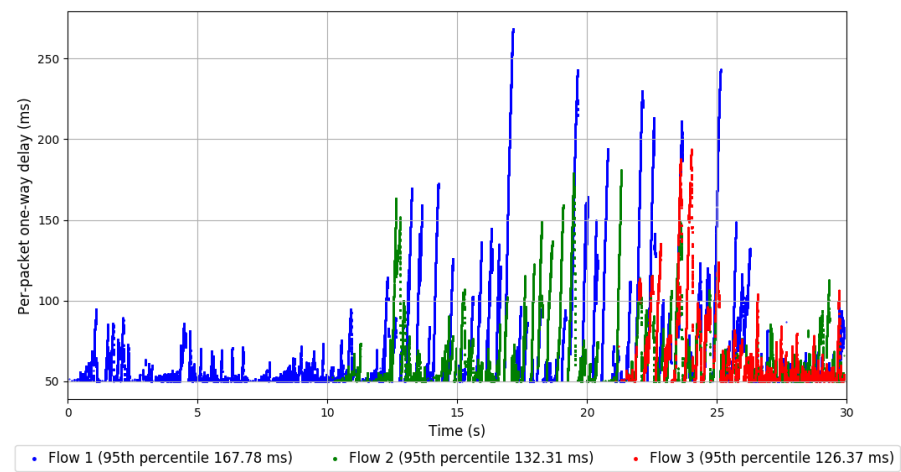
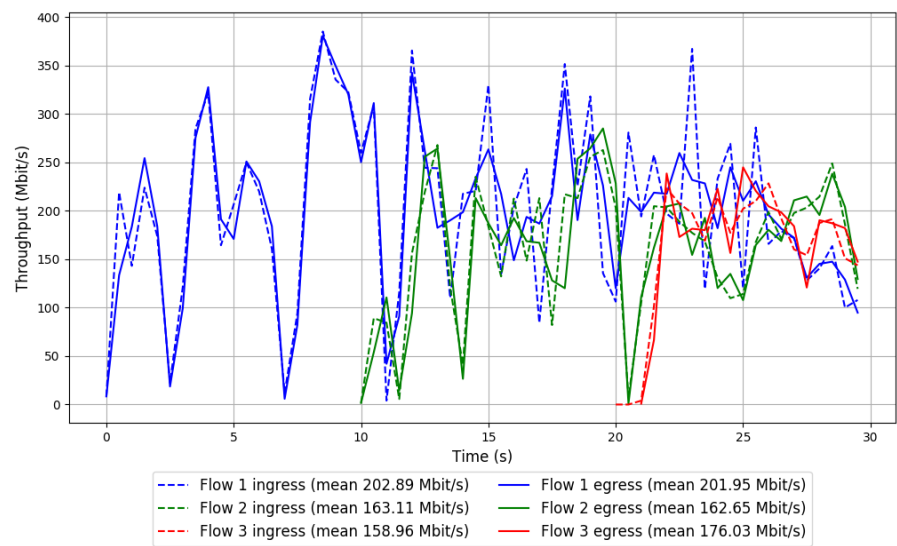
-- Flow 3:

Average throughput: 176.03 Mbit/s

95th percentile per-packet one-way delay: 126.370 ms

Loss rate: 0.47%

Run 1: Report of Verus — Data Link



Run 2: Statistics of Verus

Start at: 2017-09-19 00:17:48

End at: 2017-09-19 00:18:18

Below is generated by plot.py at 2017-09-19 03:55:19

Datalink statistics

-- Total of 3 flows:

Average throughput: 348.36 Mbit/s

95th percentile per-packet one-way delay: 105.082 ms

Loss rate: 1.37%

-- Flow 1:

Average throughput: 198.98 Mbit/s

95th percentile per-packet one-way delay: 98.402 ms

Loss rate: 1.85%

-- Flow 2:

Average throughput: 168.94 Mbit/s

95th percentile per-packet one-way delay: 93.983 ms

Loss rate: 0.12%

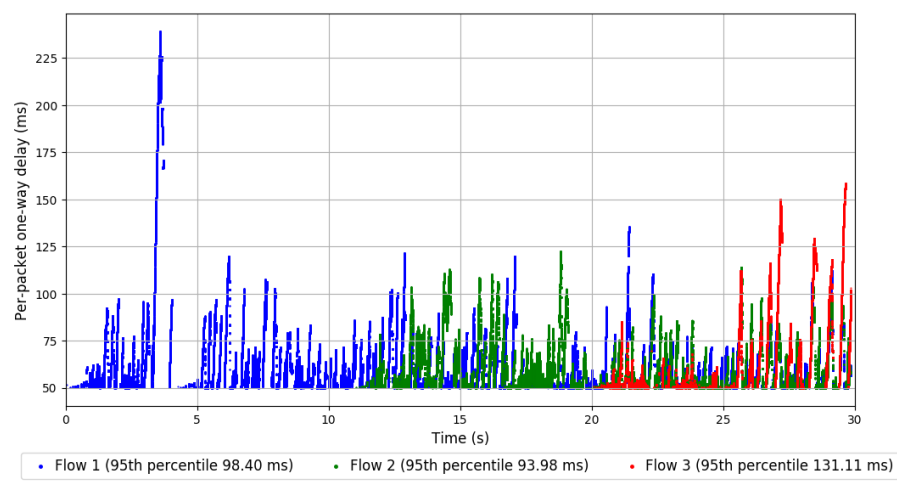
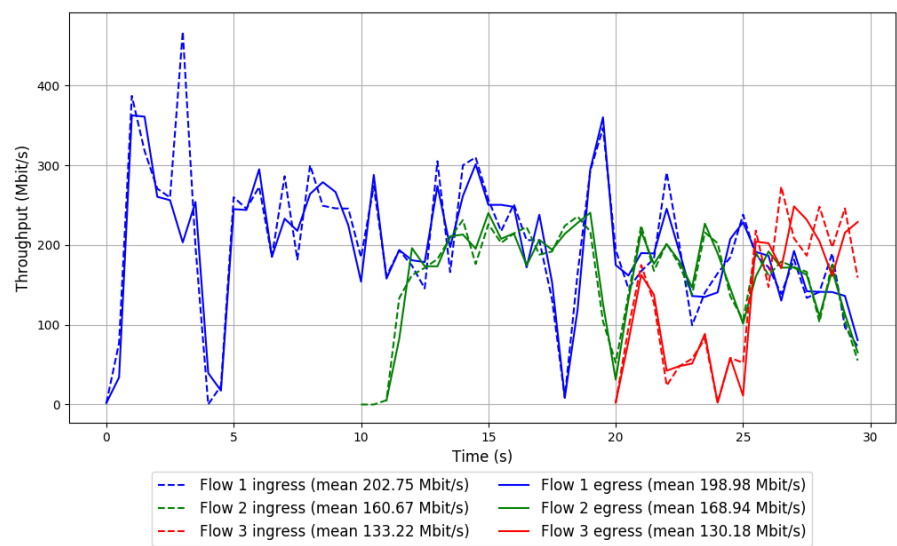
-- Flow 3:

Average throughput: 130.18 Mbit/s

95th percentile per-packet one-way delay: 131.112 ms

Loss rate: 2.19%

Run 2: Report of Verus — Data Link



Run 3: Statistics of Verus

Start at: 2017-09-19 00:26:42

End at: 2017-09-19 00:27:12

Below is generated by plot.py at 2017-09-19 03:55:19

Datalink statistics

-- Total of 3 flows:

Average throughput: 315.75 Mbit/s

95th percentile per-packet one-way delay: 122.319 ms

Loss rate: 0.38%

-- Flow 1:

Average throughput: 193.59 Mbit/s

95th percentile per-packet one-way delay: 120.024 ms

Loss rate: 0.49%

-- Flow 2:

Average throughput: 130.56 Mbit/s

95th percentile per-packet one-way delay: 81.929 ms

Loss rate: 0.22%

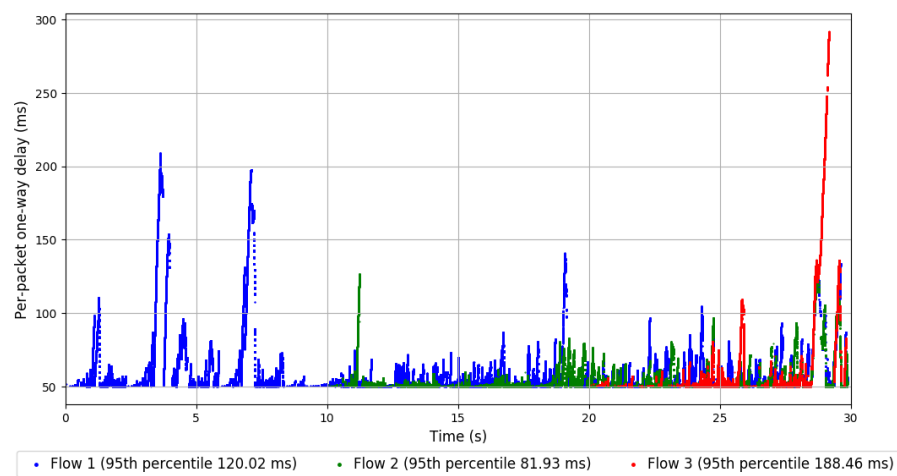
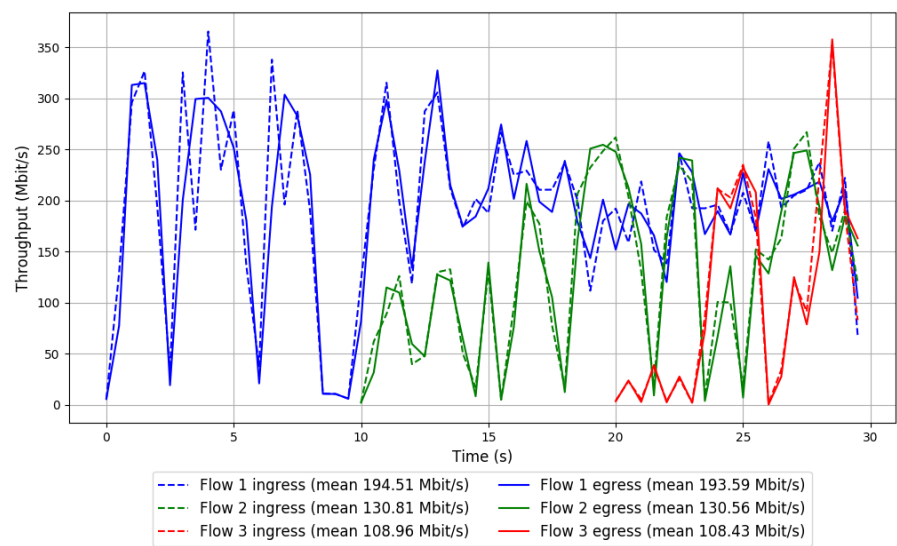
-- Flow 3:

Average throughput: 108.43 Mbit/s

95th percentile per-packet one-way delay: 188.455 ms

Loss rate: 0.17%

Run 3: Report of Verus — Data Link



Run 4: Statistics of Verus

Start at: 2017-09-19 00:35:38

End at: 2017-09-19 00:36:08

Below is generated by plot.py at 2017-09-19 03:55:19

Datalink statistics

-- Total of 3 flows:

Average throughput: 318.49 Mbit/s

95th percentile per-packet one-way delay: 88.395 ms

Loss rate: 0.13%

-- Flow 1:

Average throughput: 153.93 Mbit/s

95th percentile per-packet one-way delay: 99.681 ms

Loss rate: 0.14%

-- Flow 2:

Average throughput: 187.38 Mbit/s

95th percentile per-packet one-way delay: 77.804 ms

Loss rate: 0.07%

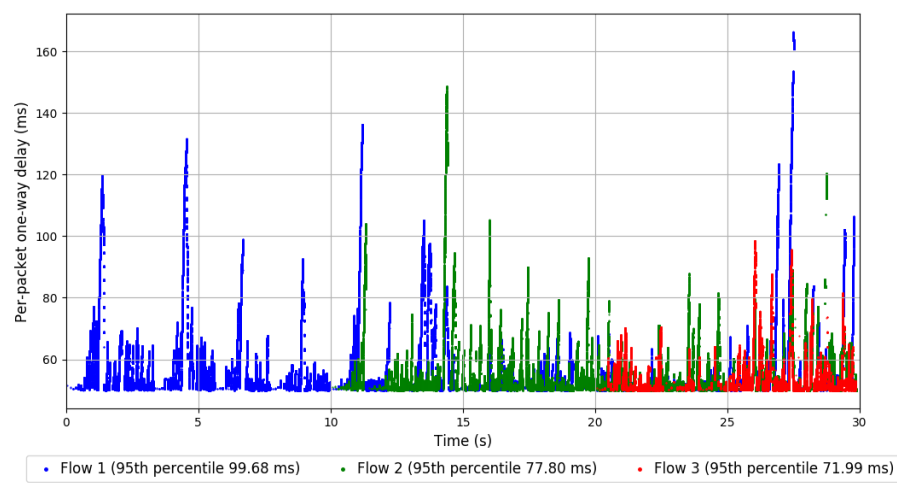
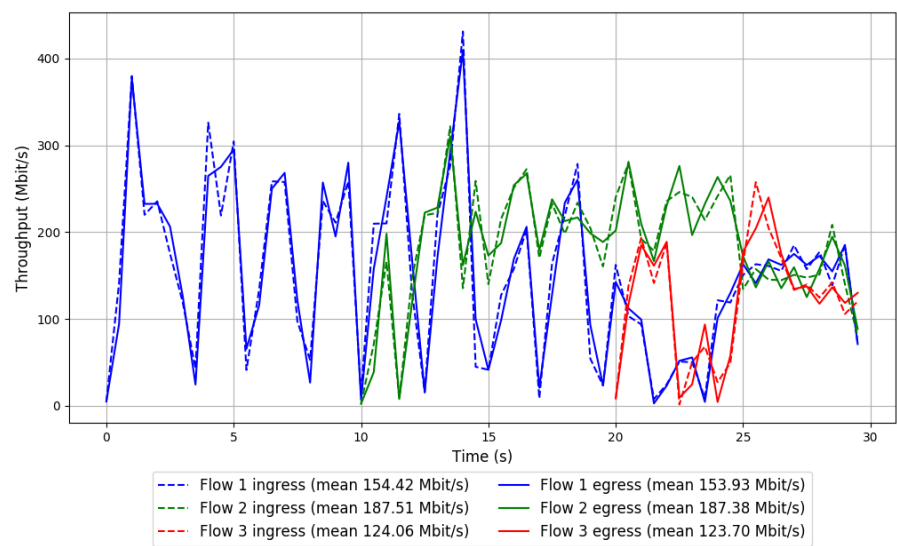
-- Flow 3:

Average throughput: 123.70 Mbit/s

95th percentile per-packet one-way delay: 71.989 ms

Loss rate: 0.27%

Run 4: Report of Verus — Data Link



Run 5: Statistics of Verus

Start at: 2017-09-19 00:44:35

End at: 2017-09-19 00:45:05

Below is generated by plot.py at 2017-09-19 03:55:19

Datalink statistics

-- Total of 3 flows:

Average throughput: 328.60 Mbit/s

95th percentile per-packet one-way delay: 107.078 ms

Loss rate: 0.55%

-- Flow 1:

Average throughput: 181.21 Mbit/s

95th percentile per-packet one-way delay: 91.891 ms

Loss rate: 0.42%

-- Flow 2:

Average throughput: 159.07 Mbit/s

95th percentile per-packet one-way delay: 128.995 ms

Loss rate: 0.67%

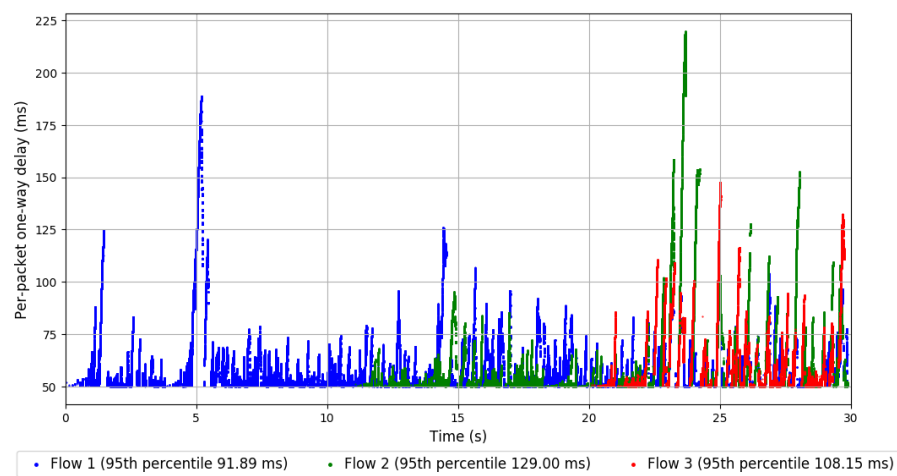
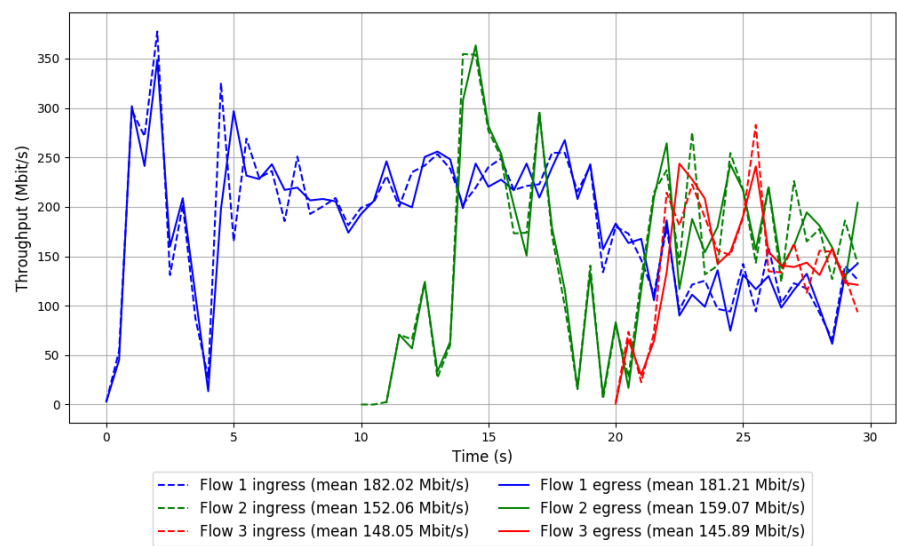
-- Flow 3:

Average throughput: 145.89 Mbit/s

95th percentile per-packet one-way delay: 108.146 ms

Loss rate: 0.80%

Run 5: Report of Verus — Data Link



Run 6: Statistics of Verus

Start at: 2017-09-19 00:53:56

End at: 2017-09-19 00:54:26

Below is generated by plot.py at 2017-09-19 03:55:31

Datalink statistics

-- Total of 3 flows:

Average throughput: 351.24 Mbit/s

95th percentile per-packet one-way delay: 115.532 ms

Loss rate: 0.10%

-- Flow 1:

Average throughput: 181.25 Mbit/s

95th percentile per-packet one-way delay: 86.413 ms

Loss rate: 0.10%

-- Flow 2:

Average throughput: 192.90 Mbit/s

95th percentile per-packet one-way delay: 145.714 ms

Loss rate: 0.09%

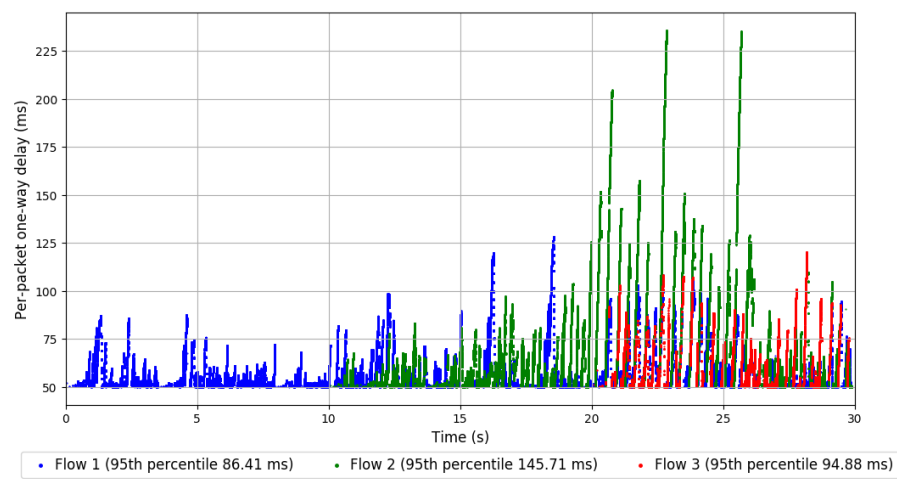
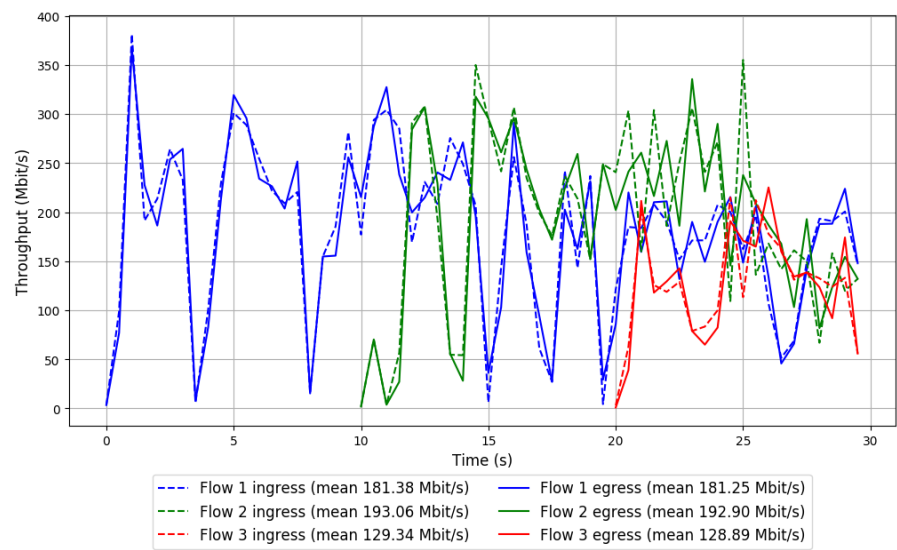
-- Flow 3:

Average throughput: 128.89 Mbit/s

95th percentile per-packet one-way delay: 94.875 ms

Loss rate: 0.11%

Run 6: Report of Verus — Data Link



Run 7: Statistics of Verus

Start at: 2017-09-19 01:03:16

End at: 2017-09-19 01:03:46

Below is generated by plot.py at 2017-09-19 03:56:24

Datalink statistics

-- Total of 3 flows:

Average throughput: 299.97 Mbit/s

95th percentile per-packet one-way delay: 107.638 ms

Loss rate: 0.28%

-- Flow 1:

Average throughput: 147.58 Mbit/s

95th percentile per-packet one-way delay: 105.672 ms

Loss rate: 0.35%

-- Flow 2:

Average throughput: 177.16 Mbit/s

95th percentile per-packet one-way delay: 108.047 ms

Loss rate: 0.18%

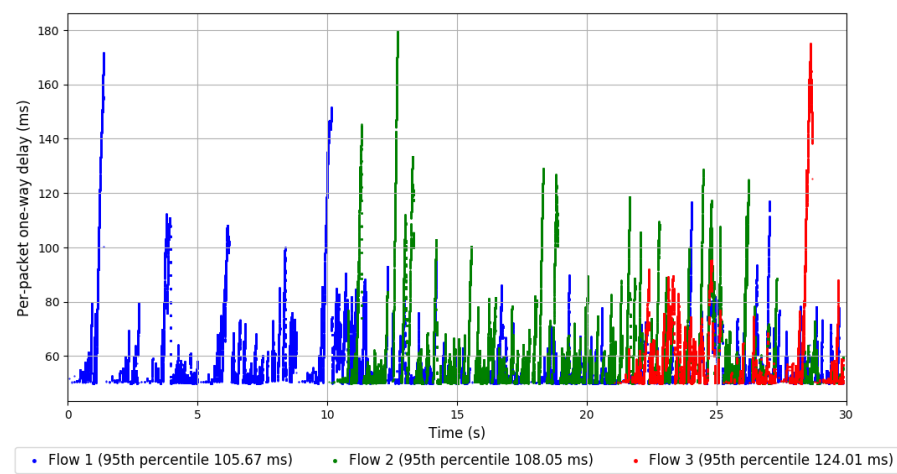
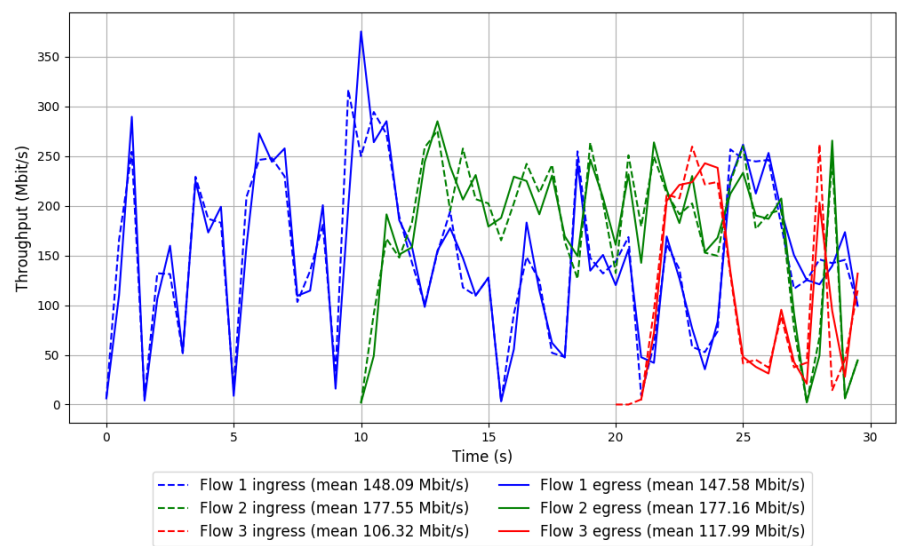
-- Flow 3:

Average throughput: 117.99 Mbit/s

95th percentile per-packet one-way delay: 124.006 ms

Loss rate: 0.34%

Run 7: Report of Verus — Data Link



Run 8: Statistics of Verus

Start at: 2017-09-19 01:12:16

End at: 2017-09-19 01:12:46

Below is generated by plot.py at 2017-09-19 03:57:21

Datalink statistics

-- Total of 3 flows:

Average throughput: 313.97 Mbit/s

95th percentile per-packet one-way delay: 171.598 ms

Loss rate: 3.63%

-- Flow 1:

Average throughput: 124.12 Mbit/s

95th percentile per-packet one-way delay: 121.234 ms

Loss rate: 0.22%

-- Flow 2:

Average throughput: 230.86 Mbit/s

95th percentile per-packet one-way delay: 166.518 ms

Loss rate: 2.74%

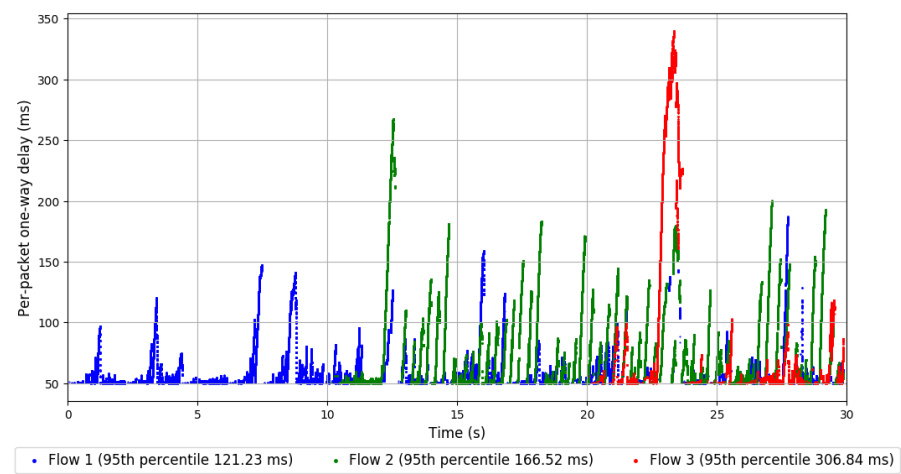
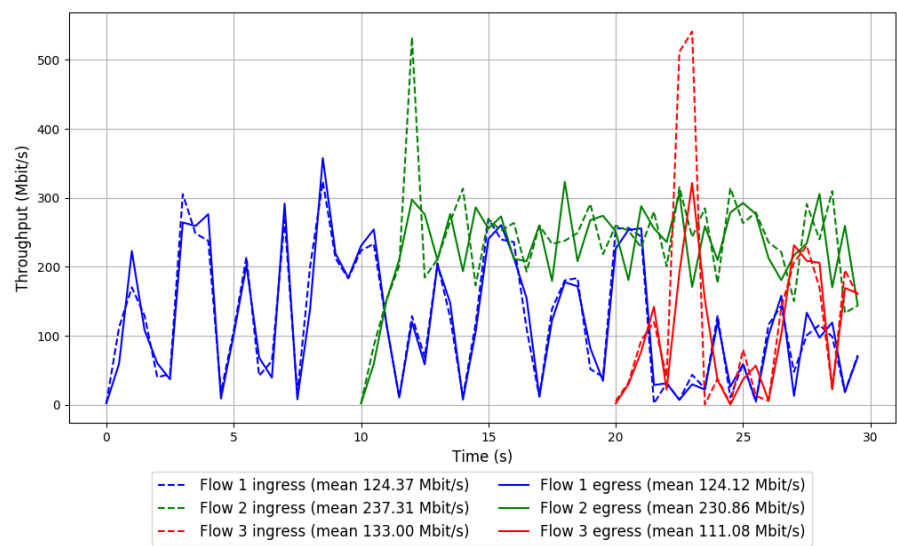
-- Flow 3:

Average throughput: 111.08 Mbit/s

95th percentile per-packet one-way delay: 306.841 ms

Loss rate: 16.55%

Run 8: Report of Verus — Data Link



Run 9: Statistics of Verus

Start at: 2017-09-19 01:20:57

End at: 2017-09-19 01:21:27

Below is generated by plot.py at 2017-09-19 03:57:25

Datalink statistics

-- Total of 3 flows:

Average throughput: 342.55 Mbit/s

95th percentile per-packet one-way delay: 145.198 ms

Loss rate: 0.42%

-- Flow 1:

Average throughput: 193.62 Mbit/s

95th percentile per-packet one-way delay: 110.231 ms

Loss rate: 0.40%

-- Flow 2:

Average throughput: 171.63 Mbit/s

95th percentile per-packet one-way delay: 197.991 ms

Loss rate: 0.49%

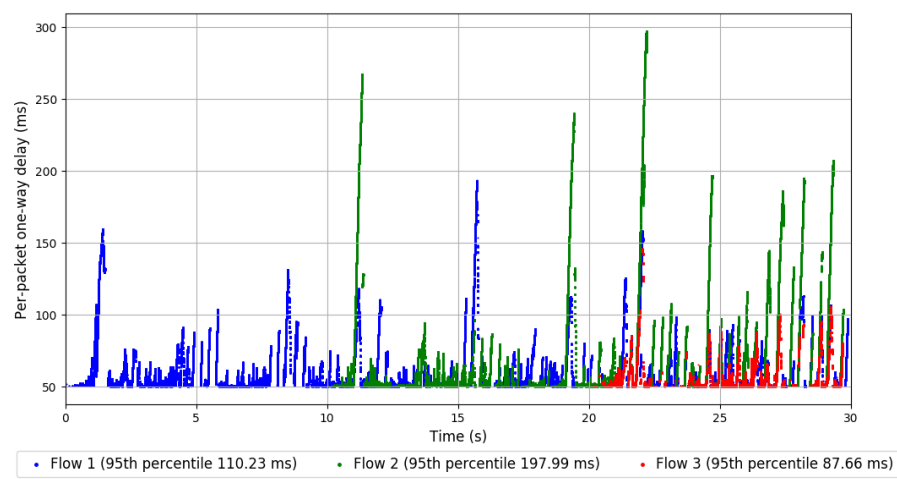
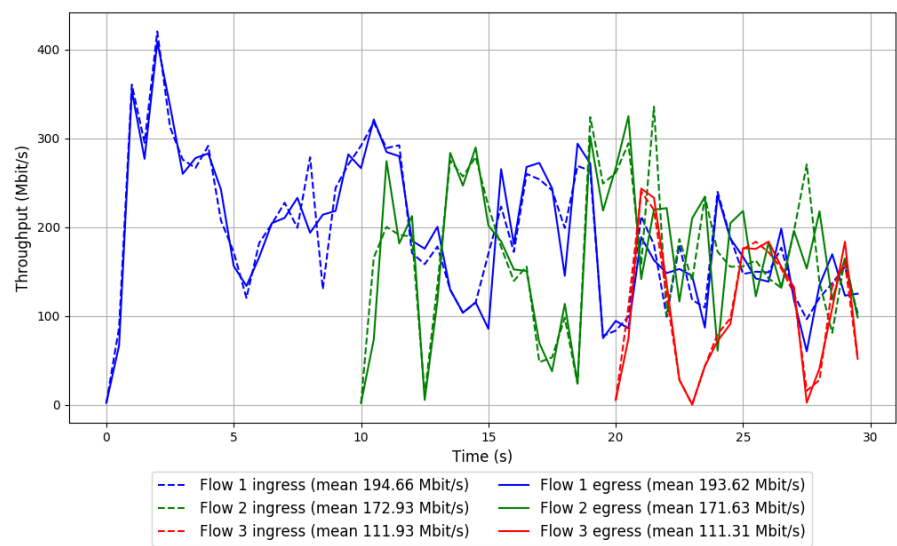
-- Flow 3:

Average throughput: 111.31 Mbit/s

95th percentile per-packet one-way delay: 87.662 ms

Loss rate: 0.27%

Run 9: Report of Verus — Data Link



Run 10: Statistics of Verus

Start at: 2017-09-19 01:30:15

End at: 2017-09-19 01:30:45

Below is generated by plot.py at 2017-09-19 03:57:25

Datalink statistics

-- Total of 3 flows:

Average throughput: 306.80 Mbit/s

95th percentile per-packet one-way delay: 94.591 ms

Loss rate: 0.16%

-- Flow 1:

Average throughput: 199.80 Mbit/s

95th percentile per-packet one-way delay: 99.802 ms

Loss rate: 0.20%

-- Flow 2:

Average throughput: 141.11 Mbit/s

95th percentile per-packet one-way delay: 88.981 ms

Loss rate: 0.10%

-- Flow 3:

Average throughput: 44.86 Mbit/s

95th percentile per-packet one-way delay: 78.924 ms

Loss rate: 0.04%

Run 10: Report of Verus — Data Link

